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Production Continues Far Above Allowable as Set by Government; Illegal Oil Persists

By JAMES McINTYRE

LITTLE change in the volume of crude oil production of the United States was noted in the figures for the past week. Oklahoma City again piled up a lot of production which will have to be balanced later in the month by deep curtailment.

The flood of hot oil in East Texas has not abated. In fact it appears to be growing worse and estimates on the quantity of illegal oil produced again range from 35,000 to 80,000 bbls. per day. Our production estimate for the field indicates about 50,000 bbls. overproduction. Kansas, which has been underproducing for weeks yielded 114,654 bbls. in the past week, a considerable increase.

The first sale of Osage oil leases in 1934 will be held in Pawhuska, Oklahoma, on February 7, and promises to yield the Indians a much larger return than other sales in the recent past as lively bidding is expected for choice leases in the Naval Reserve and Fairfax areas.

If tideland exploitation in the Huntington Beach Field ceases, as it promises to do soon, California operators will find their production stabilized naturally, if, in fact, it is not brought to a point where supply is under demand. Operators in that state are complaining even now of the small oil production allocated to the state.

The little Jal Pool in the southeast corner of New Mexico came into prominence in the past week in review when the Southern Exploration Co. completed a 5,000-bbl. well in that pool. The owning company is one of a group of companies owned largely by Sistersville, W. Va. oil men, formerly headed by the late Edward A. Durham.

A wildcat test in DeSoto Parish, Louisiana, which developed into a 12,500,000-foot gasser, was the most important news out of the Shreveport territory in the past week.

The Porter Township Pool in Midland County, Michigan has seven new oil wells with a combined initial production great enough to increase the potential production of the pool to more than 100,000 bbls. per day. Two large oil companies operating in western fields have had geologists in Michigan for weeks studying the possibilities in and outside the known producing districts.

The opening of the Cleveland Pool in Northwestern Liberty County, Texas, has been followed by an intense leasing campaign stretching from Cleveland to Conroe. A test six miles distant from the discovery well is due for completion in two weeks and will be informative in any event. The Tomball Pool may be extended into Montgomery by a test now showing gas at 5,487-5,525 feet.

In West Texas the revival of interest is indicated by 13 new locations in the district last week.

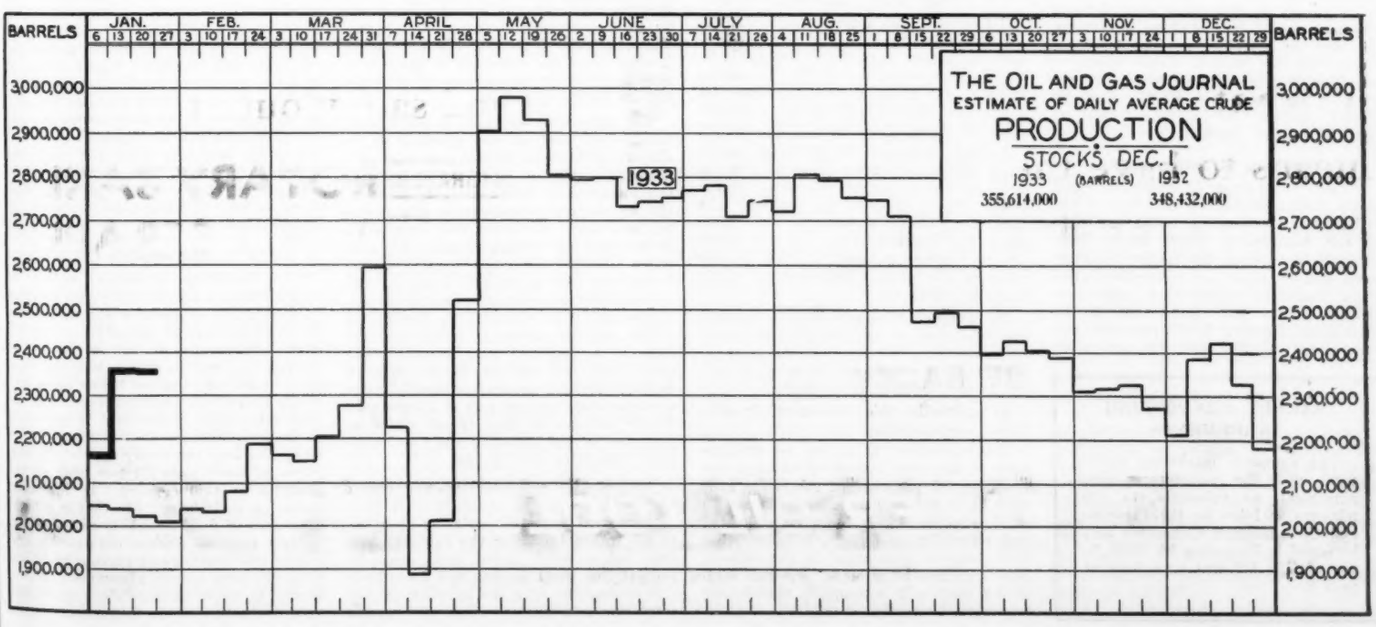
A 2,366-foot oil and gas sand discovered in a wildcat test in southern Jim Wells County, was the feature in Southwest Texas.

Crude Oil Production in the United States

Estimated daily average production for the week ending January 20, and a comparison with previous week and one year ago, follows:

	Jan. 20	Jan. 13	Jan. 21, 1933
Oklahoma—			
Oklahoma City	217,530	231,700	71,220
Seminole-St. Louis	108,050	106,495	110,115
Remainder of State	209,160	210,030	193,485
Total Oklahoma	534,740	548,225	374,820
East Texas—			
Lathrop	191,070	186,145	114,112
Kilgore	137,225	135,295	90,989
Joiner	121,385	120,710	93,125
Total East Texas	449,680	442,150	298,226
West Texas	121,837	120,538	158,986
North Central Texas	82,754	82,493	70,805
Texas Panhandle	43,342	41,602	44,493
East Central Texas	43,198	43,149	48,235
Gulf Coast—Texas	161,475	159,155	127,645
Southwest Texas	45,220	43,661	53,410
Total State of Texas	947,506	932,748	801,800
Kansas	114,645	108,230	91,940
North Louisiana	27,000	26,656	30,245
Gulf Coast—Louisiana	44,421	43,993	35,927
Arkansas	32,160	32,253	32,165
Eastern Fields	124,500	122,000	114,000
Rocky Mountain area	79,630	80,750	71,676
California—			
Santa Fe Springs	42,000	42,900	55,000
Long Beach	59,200	63,200	67,000
Playa Del Rey	10,150	10,700	13,000
Elwood	12,250	11,200	13,500
Kettleman Hills	48,000	52,500	60,250
Remainder of State	287,500	291,500	260,750
Total California	459,100	472,000	469,500
Total United States	2,363,702	2,366,855	2,022,073

Decrease 3,153 Bbls. Daily.



Marketing and Purchase Agreements Approved With Modifications by Administrator Ickes

By ANDREW M. ROWLEY

WASHINGTON, D. C., Jan. 22.—Secretary Harold L. Ickes, oil administrator, Saturday, gave his modified approval to the Purchasing and Marketing Agreements submitted to him as a plan for stabilizing the oil industry.

"The agreements become effective immediately," Administrator Ickes said, adding that he had been advised that refiners producing 85 per cent of the national supply of gasoline and other petroleum products had signed them, and that it was expected that 95 per cent eventually would become participants in the plan.

The administrator also approved standard forms of contract for use in future dealings in motor fuels between the signatories to the marketing agreement and those with whom they deal directly and indirectly in the industry.

"This agreement is in many instances a forward step," Administrator Ickes said. "The problem of lease and agency and lease and license agreements, which has been a very difficult one for the industry, has been satisfactorily adjusted by providing for the cancellation of all such agreements, which may be canceled by August 19, 1934, or earlier. This will tend to make a free and competitive retail market for gasoline and lubricating oils. No new exclusive dealing contracts can be made for lubricating oils and those that will be made in the future for gasoline will be made upon a standard form of contract giving retail dealers a right of cancellation on 30 days' notice. Such a provision will relax the rigid control that supplying companies have had over retailers in the past by means of such agreements. This is a distinct advantage to retailers.

"The marketing agreement guarantees a margin to retail dealers. I believe that these margins are large enough to permit the vast majority of those now in the business to operate at a reasonable profit. A gross marketing margin of 6 cents is allowed on gasoline above 60 octane rating and 4½ cents is allowed for gasoline below 60 octane rating.

"Another advantage of this plan of stabilization is that periodical price wars should be prevented and, through the medium of the purchase agreement, distress or surplus gasoline will be taken off the market. These measures will assure the administration of the support and co-operation of a virtually united industry in its future dealings with marketing problems.

Questions of Differentials

"There are groups of operators which claim certain savings in the cost of distribution and therefore claim the right to sell gasoline at prices below those generally prevailing. The marketing agreement will not place any restrictions upon these operators where their supplying companies are not signatories of the agreement. However, these operators have represented to me that the agreement should recognize some price differential to protect their business and to allow them to take advantage of and pass on to the public such savings as they may effect. It has been impossible for me to determine, in the short time in which I have been studying this problem, what differentials would be equitable. I believe that there is much to be said for the arguments these operators have presented. Accordingly, I have provided a method whereby they may demonstrate to me what savings they effect and obtain whatever relief is justified.

"I am willing to give this stabilization plan a trial because a preponderant group in the industry is in favor of it. I shall study its operation closely and will modify or cancel it at the first evidence of any abuse."

MARKET AND POOLING AGREEMENTS

The complete marketing agreement and the complete pooling agreement, as submitted to Administrator Ickes by the Planning and Co-ordination Committee may be found in December 14, 1933, issue of The Oil and Gas Journal, page 8.

Judge Beaty Calls Signatories to Meeting

WASHINGTON, D. C., Jan. 22.—Upon the announcement of the approval by Administrator Ickes of the Purchase and Marketing Agreements, a call has been issued for the convening of the signatories to those agreements in Washington, D. C., Wednesday, January 24, at the Carlton Room of the Carlton Hotel.

The call was issued by Amos L. Beaty, vice chairman of the Planning and Co-ordination Committee and is as follows:

"Signers of Marketing Agreement are hereby requested to meet in Carlton Room, Carlton Hotel, Washington, 10 o'clock, Wednesday, Twenty-fourth. Important that every signer have some one here duly authorized to act in all matters involved. Please give this your preferred attention. Governors of Petroleum Agency are hereby called to meet at the same time and place. Each company signatory to this Agency Agreement should designate its Governor by formal written instrument to be filed here on said date. Company can change its Governor at any time. Full attendance is most desirable. Organization and other matters will be considered."

"AMOS L. BEATY, Vice Chairman."

Administrator Ickes made public the text of his statement advising the oil industry of the approval of the agreements. The statement is as follows:

Mr. Ickes' Statement

I feel that it is appropriate to explain my purpose in approving the purchase and marketing agreements submitted to me by representatives of the petroleum industry and to make clear the objectives I hope will be attained through the operation of these agreements.

I have approved the purchase agreement subject to certain specified reservations necessary for the protection of the public and of those in the industry who may not become parties to the agreement. My objective is to relieve the market of distress gasoline without unduly reducing the amount available to supply consumer demand.

My purpose in approving the marketing agreement is to stabilize the retail price structure for gasoline and to regulate practices considered by many injurious to the industry as a whole.

In approving this agreement, frankly, I am experimenting.

The agreement is not to be effective until it has been signed by refiners representing 85 per cent of the crude runs to stills in the country during the month of November, 1933, including cracking and reforming operations. I believe that if so large a percentage of the refiners have indicated their belief that this marketing plan will accomplish the desired results, it is worthy of trial.

The suggestion has been made that these agreements may tend to create a monopoly. I will not allow such a result to obtain and I shall not hesitate to cancel these agreements upon the slightest evidence of their being abused. Furthermore, I will not tolerate any unwarranted increase in the retail prices of gasoline caused by their operation. The consumer must be given the fullest protection.

With regard to the purchase agreement I have deemed it advisable to provide that there shall be close and continuous governmental supervision of the operations of the purchasing agency to the ends that there shall be no discrimination against independent refiners and marketers, and that a competitive market safeguarding the normal flow of gasoline will continue to exist without any unfair restrictions.

Subject to Modification

I know that the marketing agreement is subject to criticism and I have doubt as to the wisdom of many of the provisions contained therein. I wish to make it clear that my approval is subject to modification for the purpose of preventing its unfair operation.

The agreement provides a differential of one-half cent in the margins to be allowed as between divided and undivided accounts. I am not entirely satisfied with the justification given for this differential by the representatives of the industry who have submitted this agreement. However, I am willing to give this provision a trial. In order to protect refiners who deal in limited classes of motor fuels and who therefore may be handicapped by their inability to supply all of the various classes of motor fuel desired by a dealer, I have provided that this differential may be changed for any dealers buying from such refiners in any given locality, upon a vote of 75 per cent of the refiners in that region which is approved by the Planning and Co-ordination Committee and by me.

Section 2 of the marketing agreement provides:

"Standard forms of contracts applying to all transactions for the sale of gasoline and/or other motor fuels shall be prepared by the Planning and Co-ordination Committee with the approval of the petroleum administrator, and the parties to this agreement shall use only such forms of contract in such transactions."

Lease and Agency

The agreement further provides that all cancelable contracts of sale now outstanding must be canceled at the earliest possible date. This requires the cancellation of all lease and agency and lease and license contracts which have cancellation clauses. To permit an orderly liquidation of the lease and agency and lease and license situation I have modified my approval of the marketing agreement as follows:

Lease and agency, lease and license and any other exclusive dealing sales contracts made with dealers subsequent to August 19, 1933, which include the sale of gasoline and/or other motor fuel, must be canceled forthwith. All such contracts renewed since August 19, 1933, in accordance with Article 5, Rule 19, Paragraph (b) of the code must be canceled at the earliest cancellation date permissible under their terms. All lease and agency, lease and license and other exclusive dealing contracts which expire prior to August 19, 1934, shall not be renewed, and all contracts having a cancellation clause must be canceled on or before that date. No new exclusive dealer contracts of any kind may be written except upon the standard form of contract approved by the Planning and Co-ordination Committee for the petroleum industry and by me.

The cancellation of existing cancelable contracts before this date should afford ample opportunity for orderly liquidation of the lease and agency and lease and license situation, and I shall expect distributors bound by noncancelable lease and agency or lease and license contracts, to make every effort to secure their abrogation by mutual consent. My action in this regard is not to be considered a decision concerning the validity of such contracts. I have directed the Petroleum Administrative Board to hold hearings upon the validity of lease and agency, lease and license, and other types of exclusive dealing sales contracts with dealers, in order definitely to determine their legality.

I wish to point out that under Rule 19 of Article 5 and its approved interpretations, no new exclusive dealer contracts may be entered into either for the sale of gasoline or other motor fuels as provided in the agreement, or both, or for the sale of lubricating oils and greases and other petroleum products. Thus the marketing agreement, after a necessary period of adjustment, should operate to restore an open market, in accordance with its apparent intent.

Differentials

The marketing agreement makes no provision for a differential as between the various grades of gasoline and as between differing methods of marketing. Operators who claim certain savings in the cost of distribution, and therefore claim the right to sell gasoline at prices below those generally prevailing, have represented to me that some price differential is necessary in order to protect their business. This claim has been vigorously opposed by suppliers of more than 85 per cent of the gasoline in this country. It has been stated on their behalf (1) that a general allowance of differentials is not justified, because it would disrupt the existing system of distribution and prevent stabilization, (2) that special allowances, if any, should be made in individual cases only upon a showing of the difference in costs

and circumstances in particular localities, and (3) that any determination should be based upon full consideration of the factors making for economic distribution. I have given careful consideration to both of these positions. Since the marketing agreement is a stabilization plan adopted by so large a group in the industry, I am unwilling to make any substantial changes therein without affording it a fair trial. Any operator in any locality who can establish to my satisfaction that he is entitled to a price differential will be granted permission to pass on to the public his actual saving in the cost of distribution. Hearings to determine the facts will be held by the Petroleum Administrative Board upon the complaint of any interested operator and due opportunity will be given to both sides to present their case. I recognize that some diversion of profit may result from the initial operation of the agreement; but I assure all parties affected that any unwarranted losses will be speedily adjusted. If, however, differentials are established in favor of any retailers, appropriate exemptions will be granted to suppliers relieving them of the obligation to maintain the margins guaranteed by Section 1.

Stabilization Committee

I have carefully considered Paragraph 3 of Section 1, of the marketing agreement which provides that stabilization committees to enforce certain provisions of this agreement "shall consist of one representative from each of two major integrated companies and one representative from a smaller integrated company, all of which companies shall have territorial and not merely local interest." It has not been satisfactorily explained to me why independent refiners have not been given representation on these committees. I have therefore modified my approval of the agreement to provide that the stabilization committees shall consist of two representatives of integrated companies and one representative from an independent refiner.

I have noted that the marketing agreement makes no specific provision for carload and cargo brokers and marketers. I have been assured by many of the signatories to the agreement that there is no intention of forcing these persons out of business and that they will be allowed to do a legitimate business under its operations. The agreement will, however, prevent certain unscrupulous persons from dealing in futures or selling short and thus disrupting a stable market by taking advantage of the presence of distress gasoline. In order to ensure the protection of carload and cargo brokers and marketers, I have provided that nothing in the agreement shall be construed to prevent the payment of commissions on business ordinarily done by them.

Penalties

I am unwilling to approve Section 4 of the marketing agreement upon any condition. This section provides for very severe penalties for persons who violate the agreement, penalties which I believe would be in contravention of Section 4 (a) and Clause 2 of Subsection (a) of Section 3 of the National Industrial Recovery Act. Any signatory or dealer violating this agreement or the standard forms of contract approved thereunder would be guilty of a breach of contract. There seems to be no reason to give directly to those in the petroleum industry a greater remedy for violations of contracts than those any other industry possess. Concurrently with my order approving the marketing agreement, I am promulgating a regulation, under Subsection (a) of Section 10 of the act, requiring all parties to that agreement and to agreements entered into upon any of the standard forms of contract to comply with their undertakings. Any breach of these agreements thus will be a violation of this regulation punishable under Subsection (a) of Section 10 of the act.

My attention has been directed to the fact that the margins provided in this agreement set forth a minimum margin for gasoline above 60 octane rating and maximum margin for gasoline below 60 octane rating. In connection with this, many complaints have been filed by jobbers stating that they are unable to operate on the 2-cent margin provided in the agreements for gasoline above 60 octane rating. From preliminary investigations which I have caused to be made, I am convinced that in certain sections of the country this complaint may be justified. To the extent actually necessary, I fully expect the industry to utilize the machinery set up in the agreement itself to raise these margins for jobbers to an equitable level. I hope it will not be necessary for complaints to be made to me against unfair use of this machinery; but the Petroleum Administrative Board will hear such complaints at any time and take immediate corrective action where this is justified by the circumstances.

Margins

I have grave doubts with respect to the adequacy of the margins provided for gasoline below 60 octane rating and I give my approval to this provision in the agreement with great hesitation and with the distinct understanding that this approval is limited to a 90-day period. If such margins prove a hardship upon any one factor in the industry, I shall take any measures necessary to overcome the conditions thus created.

Certain retailers have claimed also that a margin in excess of 4 cents is required in order to operate upon an equitable basis. These complaints have been relatively few in number and I believe that in general the 4-cent margin is adequate. I shall be receptive at all times, however, to complaints from dealers who cannot operate under this margin, and if their complaints shall prove justifiable upon investigation, I shall make every effort to give them necessary relief.

Forms of Contracts

Standard forms of contract have been submitted to me in accordance with the provisions of the marketing agreement. Pursuant to the statements that I have made above with respect to Section 2 of the marketing agreement and its obvious application to the lease and agency, lease and license and other forms of exclusive dealing contracts, I cannot approve the definitions of divided and undivided dealers set forth in these standard forms. Accordingly, the forms of contract, as approved by me, contain substitute definitions.

In as much as I consider Section 4 of the proposed marketing agreement to be in violation of certain provisions of the National Recovery Act, I am unable to approve the clauses in the standard form of contracts which provide for similar penalties for violations of the resale price maintenance provisions set forth in said contracts. Therefore, the clauses of the standard form of contracts making Section 4 applicable have been stricken therefrom.

I urgently request the petroleum industry to co-operate with me in giving both the purchase agreement and the marketing agreement a fair trial, keeping in mind the reservations which I have set forth above. I have acted in what I deem to be the best interests of the industry as a whole and what I consider to be in the public interest. After these agreements have been in operation for a sufficient period, I shall be receptive to suggestions as to the necessity for making further modifications in my order approving the agreements in the light of our experience as drawn from their operation.

HAROLD L. ICKES,
Administrator of the Petroleum Industry.

The necessary orders and one new regulation follow:

Marketing Agreement Order
I

Whereas, certain members of the petroleum industry, after a prolonged and careful consideration of its needs, have entered into an agreement hereinafter referred to as the "Marketing Agreement," designed to stabilize the retail market of petroleum products, and with a view to assuring fair margins to distributors and retailers of such petroleum products, and have submitted this agreement to me under the code of fair competition for the petroleum industry and under the National Industrial Recovery Act; and

Whereas, this agreement has been approved and recommended to me by the Planning and Co-ordination Committee under the code of fair competition for the petroleum industry; and

Whereas, I am advised that refiners of petroleum and its products whose runs to stills and charging and refining operations represented 85 per cent of the total runs to stills and charging and reforming operations in the United States during the month of November, 1933, have become parties thereto; and

Whereas, suitable public notice of the aforesaid agreement has been given pursuant to Section 5, Article 1, of the code of fair competition for the petroleum industry, approved by the President, August 19, 1933; and

Whereas, I have carefully and impartially considered this agreement and have found and determined that it is not designed to promote monopoly or to eliminate or oppress smaller enterprises, but will serve to effectuate the purposes of the National Industrial Recovery Act, and the code of fair competition for the petroleum industry, by eliminating wasteful and unfair competitive abuses and thereby conserving an essential natural resource;

Now, therefore, I hereby order that this agreement be and it is hereby approved.

Approved and promulgated this nineteenth day of January, 1934.

HAROLD L. ICKES.

Modifications
II

Whereas, I have this day approved a marketing agreement submitted to me * * *; and

Whereas, Subsection (b) of Section 10 of Title 1 of said act provides that "The President may from time to time cancel or modify any * * * approval * * * issued under this title;"

Now, therefore, pursuant to the authority vested in me * * * my said approval of the said marketing agreement is hereby modified so as to provide the following:

1. In no event shall the minimum gross marketing margins, as established in the first and second paragraphs of Section 1 of said marketing agreement, be raised except by complying with the provisions of the fourth paragraph of Section 1 of said agreement.

2. The term "undivided" as applied to resale accounts in the first and second paragraphs of Section 1 of the marketing agreement shall apply to sales of gasoline and other motor fuels only, and shall not include sales of kerosnee, furnace oils, distillates, tractor and Diesel fuel oils, lubricating oils and greases, or any other products sold at wholesale or retail by any distributor, jobber, wholesaler or retailer.

(Continued on Page 18)

February Gasoline Production Order Is Approved by Administrator Ickes

BY ANDREW M. ROWLEY

WASHINGTON, D. C., Jan. 22.—Figures on gasoline production during February in the different refining districts of the country and for gasoline inventories on February 28 have been approved and the following order on the matter was adopted by the Planning and Co-ordination Committee and approved by Administrator Ickes.

Whereas, the administrator of the code of fair competition for the petroleum industry, acting pursuant to Article 4 of said code and the order of said administrator dated October 19, 1933, has determined the relationship of gasoline inventories and sales for the several refining districts as of February 28, 1934, which translated into quantities is as follows:

	Total stocks of gasoline (excluding unblended natural gasoline) at refineries, in bulk terminals, in transit, and in pipe lines as of February 28, 1934. Amount 42-gal. bbls.	Pct. of sales year ended 9-30-33
1. East Coast	15,020,000	21.7
2. Appalachian	2,360,000	13.9
3. Ind., Ill., Ky.	7,600,000	12.0
4. Okla., Kans., Mo.	5,650,000	10.8
5. Texas:		
(a) Inland Texas	1,910,000	6.4
(b) Tex. Gulf Coast	5,250,000	7.5
6. Louisiana-Arkansas:		
(a) La. Gulf Coast including Alabama	1,490,000	10.5
(b) N. La.-Ark.	420,000	5.1
7. Rocky Mountain	1,230,000	14.4
8. California	11,200,000	17.2
Total United States	52,130,000	1.31

Therefore, be it resolved and ordered:

1. That the gasoline production (at refineries including straightrun, cracked, and natural gasoline blended) in each of the various refining districts for the month of February, 1934, shall not exceed the following:

District—	Amount (42-gal. bbls.)
1. East Coast	4,890,000
2. Appalachian	1,140,000
3. Ind., Ill., Ky.	4,580,000
4. Okla., Kans., Mo.	3,420,000
5. Texas:	
(a) Inland Texas	2,010,000
(b) Texas Gulf Coast	4,990,000
6. Louisiana-Arkansas:	
(a) Louisiana Gulf Coast including Alabama	980,000
(b) N. La.-Ark., including Mississippi	550,000
7. Rocky Mountain	590,000
8. California	3,990,000
Total United States	27,140,000

2. And further that each refining company shall conduct its operations so that it will comply with this order and contribute its full share to the attainment of the inventory levels set forth in Paragraph 1 above;

3. And further that in the case of gasoline manufactured in one of said districts which is shipped into and placed in the manufacturer's or affiliated company's storage in another district, the refining company which has manufactured said gasoline shall, in determining the reasonable quantity of gasoline produced, be accountable for the gasoline so manufactured and stored:

4. And further that the several regional committees are requested to take steps to carry out this order, and for that purpose are authorized to designate such regional trade associations, or representatives thereof, subcommittees, or such other agency as they may deem necessary;

5. And further that each refining company shall promptly inform the agency designated for this purpose by the regional refining committee as to its contemplated production and sales of gasoline during the month of February, 1934, its contemplated stocks of gasoline at the end of said month, and other pertinent data, such information to be furnished on forms to be supplied by the regional refining committee;

6. And further that any refining company whose production of gasoline in the refining district or districts in which it operates will exceed the amounts considered by the agency acting for the regional committee to be reasonable, in the light of this order, shall notify the Planning and Co-ordination Committee at Washington and the chairman of the regional refining committee within its region, such notice to be accompanied by reasons and full statistical data.

Forms of Contract Approved by Administrator Ickes and Their Use Is Made Mandatory

By W. T. ZIEGENHAIN

Approval of the marketing and pooling agreements by Administrator Ickes calls for the immediate use of standardized forms of contract among refiners, jobbers, dealers, brokers, etc., involving every transfer of motor fuel ownership from the refinery to the consumer. Existing contracts must be cancelled as soon as provisions within the instrument permit and if no such provision is included, and an agreement under the new form of contract cannot be reached by the two parties, their differences must be submitted to the stabilizing committee under the Planning and Co-ordination Committee and its decision will be made principally upon the basis that it is all essential that prices in any community be stabilized. The old lease and agency agreement will automatically cease to be an issue.

The administrator has approved five forms of contract and two forms of order acceptance.

The new system of accounting for the transfer of motor fuel from one owner to the other has been designed to stabilize the entire market. Briefly, the system, as it may be referred to here makes use of the posted retail price as the basis for the jobber's price, the dealer's price and the refiner's price. It so happens that the retail price structure within any territory usually depends upon the prices posted by major marketing companies which are affiliated with refining companies as subsidiaries so upon first thought, it might appear as though prices could actually be dictated by the major refining companies.

Administrator Ickes makes it very clear in his statement which accompanied the signing of the agreements that he will see that this does not happen. An analysis of the individual forms of contract more clearly shows where this sort of situation is very unlikely to be obtained and in fact, the marketing agreement and the contracts in their revised forms, indicate that liberal concessions have been made to smaller refiners, low-cost marketers and there is nothing to suggest any change in the present practice of buying and selling through brokers. Track-side stations have not been given a preference under the new system but the administrator has shown his willingness to consider their claims on the basis that they are able to effect a savings in marketing due to their particular methods which would permit them to pass a substantial saving on to the consumer. If that is proved the administrator might then provide for a separate schedule of discounts. Until then, however, the distinction between the so-called regular stations and trackage stations ceases to exist so far as the marketing agreement is concerned.

Distributor's Marginal Contract

One of the most important forms of contract, if not the most important, is that designated as the Distributor's Marginal Contract. In it the refiner guarantees the distributor a definite margin between the retail price and the cost to the distributor. It is the type of contract under which most of the gasoline is sold by the major refining companies. The new form of contract is published here in its entirety, including the contractual provisions, the general provisions and also a rider which will be discussed later. Its feature is that it provides a 6-cent margin on gasoline above 60 octane and 4½ cents per gallon for gasoline below 60 octane.

In reviewing the contractual provisions it will be noticed that three grades of gasoline are named and these grades are designated by a range of octane values. The new form differs materially from the one now in use because of the wider range of octane values allowed under the second classification or what might be termed, the regular grade or house brand. This provides for all gasoline between 60 and 70 octane while the present contracts usually specify 65 to 70 octane.

In general refiners have been furnishing as their house brand, gasoline having an octane rating of between 68 and 70, and the price in the majority of in-

Approved by Planning and Coordination Committee for the Petroleum Industry and the Petroleum Administrator.

OFFICIAL
DISTRIBUTOR'S MARGINAL CONTRACT
FOR GASOLINE AND OTHER MOTOR FUELS

CONTRACT OF SALE made....., 193....,

between....., ...
(Name of Company) (Address of Company)

hereinafter called "Seller," and.....
(Name of Distributor)

....., hereinafter called "Purchaser."
(Address of Distributor)

FIRST: *Sale; Products; Price.* Seller hereby agrees to sell and deliver and Purchaser agrees to buy, receive and pay for the entire quantity (subject to maxima and minima below stated) of motor fuel, in full tank car, truck train or barge lots, required by Purchaser in Purchaser's business of distributing petroleum products. In the performance of their respective obligations hereunder, Seller will deliver and Purchaser will receive and pay for the following grades and/or brands of the kind and quality marketed by Seller at time and place of delivery at the prices below stated:

MOTOR FUEL		QUANTITY PER YEAR	PRICES
GRADES	BRANDS		
Above 70 octane.....	.....	Minimum .....gallons Maximum: .....gallons	Seller's authorized service station price per gallon in effect at destination at time of shipment less Seller's posted discount to distributors.
60 to 70 octane.....	.....	Minimum .....gallons Maximum: .....gallons	
Below 60 octane..... Octane rating shall be determined by prevailing A. S. T. M. Method.	.....	Minimum .....gallons Maximum: .....gallons	
The term "motor fuel" for the purposes of this contract shall include, without limitation, gasolines and/or other motor fuels, but shall not include kerosenes, furnace oils, distillates, tractor and diesel fuel oils.			

The words "Seller's authorized service station price" mean the service station price per gallon for the grade sold and delivered hereunder fixed by Seller from time to time and furnished to Purchaser as hereinafter provided for the destination hereinafter mentioned.

The words "Seller's posted discount to distributors" mean Seller's prevailing discount per gallon to distributors for the grade sold and delivered hereunder as posted at Seller's office at....., at time of shipment, in respect to destination. Seller's authorized service station prices shall be subject to inspection by any interested parties at Seller's said office.

In no event shall said discounts (a) on motor fuels of 60 Octane and above be less than 6 cents per gallon or one and one-half times Seller's authorized discount on said motor fuels to undivided dealers buying from Purchaser, whichever is the greater, and (b) on motor fuels of below 60 Octane, be more than 4½ cents per gallon or one and one-half times Seller's authorized discount on said motor fuels to undivided dealers buying from Purchaser, whichever is less.

The discounts to distributors and to dealers above referred to shall at all times be those established in accordance with the provisions of an agreement, dated December 7, 1933, relating to uniform contracts and other matters and approved by the Planning and Coordination Committee for the Petroleum Industry and the Petroleum Administrator.

In event taxes on any grade of motor fuel sold hereunder or on its sale or use payable under the law by Purchaser are included in Seller's authorized service station price therefor, such taxes shall be deducted therefrom and price to Purchaser hereunder in such case shall be the result of said deduction less the applicable discount hereinabove set forth.

(Continued on Next Page)

stances has been that for the middle bracket.

There is an unusually wide range in the middle bracket here, however, and it is apparent that the minimum has been lowered in this bracket to enable some of the smaller refiners to sell their gasoline within this bracket. This wide range suggests a compromise to take care of a group of refiners who are manufacturing ordinary cracked gasoline of 60 to 65 octane rating, and the other group which are adding antiknock compounds to bring the octane rating up to 68 to 70.

The new contract eliminates any buying on the so-called open market of gasoline above 60 octane. It is optional, however, as disclosed in the rider, whether the refiner give the buyer the privilege of purchasing gasoline below 60 octane on seller's open market price or take the 4½-cent guarantee.

The contract with the rider means that the refiner is guaranteeing the distributor what is generally described as local protection. It is obvious that if a distributor sells the refiner's products he will have to meet recognized competition, and this is a means.

It is to be noted that based upon the provisions of the contract, guaranteeing the distributor 4½ cents per gallon under the posted service station price of gasoline below 60 octane, that the netback price to the refiner would be the same for regular grade of gasoline as for the third grade, if the selling differential at the service station is maintained at 1½ cents per gallon, which is the figure mentioned on various occasions—as being an equitable differential. This seems to be a rather peculiar condition, and therefore, it is apparent that the official rider for motor fuel below 60 octane was promulgated for the purpose of eliminating that provision of the contract basing the distributor's price upon 4½ cents under service station price, and permitting the purchase of this particular grade of gasoline on the refiner's spot posted price, if the distributor so elected.

Analyzing the contract further, it may be seen that there will be no allowances, because of distributors selling under the refiners or own trade brand or as a nonbranded product, and that no discounts will be allowed for advertising or other such purposes.

Dealer Contract

Next in importance is the Dealer's Contract, which in form follows the general provisions of the distributor's contract in that three grades of motor fuel are provided for and prices to the dealer are dependent upon the seller's or refiner's service station price less the posted discount to like purchasers on like deliveries.

The contractual and general provisions of this form of contract are published in detail under the heading of Dealer Contract in subsequent paragraphs.

Commercial Consumer Contract

One of the most controversial forms of contract outside of the lease and agency agreement has been that for the commercial consumer. The definition of a commercial consumer itself was vague and abuse of the term led to price wars. Under the new form the buyer pays the seller tank wagon price for the respective grade of motor fuel purchased and deliveries of less than 25 gallons will call for an increase in the per gallon cost of 2 cents. Discounts are allowed based upon quantity deliveries and the schedule of discounts may be seen in the summary of the provisions contained in the form published here under the heading "Commercial Consumer Contract."

Commission Agency Agreement

The form of Commission Agency Agreement is similar to that now in general use among the larger marketing companies. The form specifically outlines the duties of the agent and the matter of commissions is left open in as much as the station price will be controlled by the supplier. The agent is not paid a commission on car lot sales so he cannot act as broker unless written arrangement is made with the supplier before the transaction is consummated.

The detailed provisions of the contract appear under the caption "Commission Agency Agreement" in following paragraphs.

Resellers Tank Ship Contract

The Resellers Tank Ship form of contract will be used on all sales of motor fuels going to buyers having bulk plants located on water and the prices to be paid must be those posted for the spot market by the supplier and open to all like buyers. It does not guarantee a minimum margin and specifically states that the buyer cannot change to another form of contract to avoid disadvantages that may develop prior to its normal termination.

This contract also requires that the sellers or refiner shall notify the buyer as to the seller's authorized service station prices and allowances and discounts to each class of reseller, and keep purchaser advised as to the method of determining prices to all classes of resellers buying motor fuel from the purchaser. In other words, even though this is a spot price contract, the seller, or the refiner, shall furnish the purchaser with service station prices, etc., and require that each abide by the prices furnished him. This form is published in detail here.

Confirmation of Acceptance and Order

Two forms of acceptance have been designed, one for spot tank car sales and

(Continued from Preceding Page)

SECOND: Resale Prices—Seller from time to time shall classify the resellers who purchase motor fuel from the Purchaser. Seller's classification and the determination of the discounts and allowances, if any, which may be granted by Purchaser to any class of reseller shall be conclusive.

In regard to each grade of motor fuel, Seller shall currently notify Purchaser what are Seller's authorized (a) service station prices, and (b) allowances or discounts to each class of reseller; and shall advise Purchaser the proper method of determining prices to all classes of resellers purchasing motor fuel from Purchaser. Purchaser, in the manner required by the Petroleum Code, shall post, as Purchaser's prices and discounts, the prices and discounts thus supplied by Seller.

Purchaser shall resell motor fuel at service stations and to resellers at Seller's authorized price as set forth in Seller's notice in effect at time and place of resale by Purchaser applicable to the grade of product, type of resale and method of delivery involved in the resale transaction.

Purchaser shall require any reseller buying from Purchaser to resell the motor fuel, sold by Purchaser to such reseller, at Seller's authorized price in effect at time and place of resale by said reseller applicable to the grade of product, type of resale and method of delivery involved in such resale transaction, and shall incorporate a provision to that effect in each contract of sale with each such reseller.

The intent of this clause is that Purchaser shall strictly maintain and shall cause resellers buying from Purchaser to maintain the prices of Seller's motor fuel designated from time to time by Seller for the territory in which Purchaser does business.

If Purchaser shall violate any provision of this Clause Second, Seller shall suspend further delivery hereunder if and so long as required so to do by a Committee established pursuant to the provisions of Sections 2 and 3 of an agreement, dated December 7, 1933, relating to uniform contracts and other matters and approved by the Planning and Co-ordination Committee for the Petroleum Industry and the Petroleum Administrator, without prejudice to any other right or remedy on the part of Seller.

THIRD: Delivery—F. O. B. tank cars, truck trains, barges or other means of transportation selected by Seller properly consigned to Purchaser's destination with freight allowed to destination.

FOURTH: Place of Delivery—Seller's refinery or terminal at .....

FIFTH: Destination—Purchaser's bulk plant or plants at.. .....

(The following provision designated Sixth, or any part thereof, may be used or not used at the option of the parties to the contract.)

SIXTH: Territory—Purchaser's distribution of products purchased hereunder shall not, without Seller's written consent, extend beyond the limits of the following territory:

This provision { shall not be deemed / shall be deemed } to give Purchaser exclusive territorial rights.

SEVENTH: Terms of Payment .....

Note: Credit terms shall not exceed those permitted by the Petroleum Code.

Discounts for cash, if any, shall not be allowed from or applied to or computed upon taxes or freight.

EIGHTH: Place of Payment—Seller's office at .....

NINTH: Duration of Contract—One year beginning....., 19..... and thereafter until terminated by either party by thirty days prior written notice; provided, however, that either party at its option, in addition to all other available remedies, may terminate this agreement forthwith upon the other's failure to perform any of the obligations imposed upon the other hereby.

TENTH: Uniform Contract—This form of contract is the official form of Distributor's Marginal Contract, prepared by the Planning and Co-ordination Committee for the Petroleum Industry, and approved by the Petroleum Administrator.

ELEVENTH: Approval—This agreement or any modification thereof shall not be binding upon Seller until approved and signed on its behalf by ..... Commencement of performance hereunder prior to approval and signing as above stipulated in no case shall be construed as a waiver by Seller of this requirement.

(The use of the foregoing clause shall be optional with Seller.)

TWELFTH: Other Provisions—The provisions of contract printed on page 4 hereof, except those that by their terms are inapplicable, are parts of this contract.

....
Witness: (Purchaser)

..... By .....
Witness:

....
Negotiated by: (Seller)

..... By .....

Official Rider for Distributor's Marginal Contract for motor fuel below 60 Octane.

Rider attached to and forming part of contract between..... (Seller) and .....(Purchaser), dated .....

Purchaser hereby elects to buy, receive and pay for and Seller agrees to sell any motor fuel of less than 60 Octane that may be covered by this contract at Seller's spot tank car price (in lieu of the price stipulated in Clause First of said contract) for such product in effect at time of shipment as posted at Seller's plant designated in Clause Fourth of said contract.

Said price shall be f.o.b. Seller's refinery or terminal, designated in Clause Fourth of said contract.

Purchaser shall pay all freight and other transportation charges.

Anything to the contrary notwithstanding:

(a) Seller may make any delivery of said motor fuel of less than 60 Octane from any refinery or terminal other than that above provided for and shall increase its invoice price for such motor fuel so delivered, to an amount equivalent to what the cost to Purchaser at destination would have been, had the delivery thereof been made from the refinery or terminal specified in Clause Fourth.

(b) In lieu of making delivery of such motor fuel of less than 60 Octane by rail, Seller may deliver any of or all such motor fuel to Purchaser at point of destination by any other means of transportation whatsoever and shall increase its invoice price to purchaser to an amount equivalent to what the cost to Purchaser at destination would have been had the delivery thereof been made by rail.

Any and all provisions set forth in the above mentioned contract, hereto attached, pertaining to gross marketing margin or differential between Seller's authorized service station price in Purchaser's territory and the spot price herein mentioned, shall be ineffective and void insofar as motor fuel below 60 Octane is concerned.

Signed and delivered the day of the date of the aforesaid contract.

(General Provisions Next Page)

the other for spot barge and tank ship sales. These forms must be used with every shipment and through their use the supplier obligates himself to see that the prescribed resale prices are charged in the same manner as when the sale is made under contract. Each of these forms is printed in detail here also.

DEALER CONTRACT

FOR GASOLINE AND OTHER MOTOR FUELS SOLD ON PREMISES NEITHER OWNED NOR LEASED BY SELLER

CONTRACT OF SALE made ...., 19.., between ..... (Name of company and its local address) hereinafter called "Seller," and ..... (Name of dealer and business address) on date hereof a Divided (or an Undivided) Dealer, hereinafter called "Purchaser."

FIRST: Sale; Products; Price—Seller hereby agrees to sell and deliver and Purchaser agrees to buy, receive and pay for the below stated quantity of motor fuel. In the performance of their respective obligations hereunder, Seller will deliver and Purchaser will receive and pay for the following grades and/or brands of the kind and quality marketed by Seller at time and place of delivery, at the prices below stated: (Division of grades, brands and quantities same as outlined in Distributor's Marginal Contract.)

Prices per Gallon—Seller's service station price (without deduction or discount) for the grade delivered in effect at time and for place of delivery as posted at Seller's bulk plant from which deliveries are made less only Seller's prevailing discount in effect to dealers of purchaser's class at the time and for place of delivery as posted at said bulk plant.

SECOND: Resale Prices — The Purchaser shall resell each grade of motor fuel at Seller's posted service station price per gallon (witnout any discount or deduction therefrom) prevailing at the time and for the place of such resale as posted at Seller's bulk plant from which deliveries are made to Purchaser hereunder. Such resales shall be made only from the points of delivery specified herein.

If and when Purchaser is a Divided Dealer, as hereinafter defined, and as such has a contract with another supplier for motor fuel and said contract contains a resale price clause substantially like that above set forth, Purchaser shall strictly comply with said provisions.

If Purchaser shall violate any provision of this Clause Second, Seller shall suspend further deliveries hereunder if and so long as required so to do by a committee established pursuant to the provisions of Sections 2 and 3 of an Agreement, dated December 7th, 1933, relating to uniform contracts and other matters and approved by the Planning and Co-ordination Committee for the Petroleum Industry and the Petroleum Administrator, without prejudice to any other right or remedy on the part of Seller.

THIRD: Delivery and Point(s) of Delivery—By tank wagon or truck at.. ..... [Here insert location of dealer's station(s).]

FOURTH: Terms of Payment—(Same as Distributor's Marginal Contract.)

FIFTH: Duration of Contract — One year, beginning ....., 19.., and from year to year thereafter; provided, however, that either party may at any time terminate this agreement at the end of any calendar month by at least thirty days' prior written notice to the other.

Either party, at its option, in addition to all other available remedies, may terminate this agreement forthwith upon the other's failure to perform any of the obligations imposed upon the other by this contract.

SIXTH: Classification of Dealers—The classes of dealers to which this contract is applicable are as follows:

Divided dealer: One selling motor fuel of more than one supplier from the same or adjoining locations.

Undivided dealer: One selling motor fuel of only the seller from the same or adjoining locations.

If and when Purchaser is a Divided Dealer, Purchaser may become an Undivided Dealer at any time Purchaser so elects; if and when Purchaser is an Undivided Dealer, Purchaser may become a Divided Dealer upon the expiration of thirty days after notice to Seller to that effect; provided, in either case, Purchaser does not thereby violate any provision of a then existing agreement for the purchase of motor fuel.

SEVENTH: Approval—(Same as Distributor's Marginal Contract.)

Provisions of Contract

Petroleum Code, N.I.R.A. and Activties Thereunder, Entirety of Contract, Waiver, Deliveries in Steel Barrels, Ethyl and Other Motor Fuel Antiknock Compounds, Motor Fuel Below 60 Octane, Changes of Brand Name, Discontinuance

General Provisions in Distributor's Marginal Contract

Petroleum Code—The parties hereto shall at all itmes during the period of this agreement strictly comply with the letter and spirit of the Code of Fair Competition for the Petroleum Industry promulgated by the President of the United States on August 19th, 1933, and all official amendments, modifications and interpretations thereof.

N.I.R.A. and Activities Thereunder—If any provision herein contained in Seller's opinion depends for its validity in whole or in part on the National Industrial Recovery Act or any agreement made pursuant thereto or the Petroleum Code, then, on the expiration of said act or the termination of said agreement or of the applicable Code provision or the invalidation of any thereof, in Seller's opinion, by a court of competent jurisdiction, such provision shall be thereafter ineffective without, however, in any manner nullifying any other provision of this contract.

Entirety of Contract—No prior stipulation, agreement or understanding of the parties or their agents in respect to the subject matter of this agreement shall be valid or enforceable unless embodied in this contract or covered by these provisions.

This contract supersedes and cancels all agreements between the parties in respect of the purchase by Purchaser and sale by Seller of products covered hereby for delivery at the point(s) of delivery herein stated and without prejudice to accrued rights of either party under said superseded agreements.

Waivers—The Seller's right to require strict performance by Purchaser of any and/or all obligations imposed upon Purchaser by this contract shall not in any way be affected by any previous waiver, forbearance or course of dealing.

Deliveries in Steel Barrels—If serially numbered or returnable steel barrels of the Seller are employed they shall remain the property of the Seller, and shall be returned promptly on demand in as good condition as when received, less ordinary wear and tear, and nothing other than the original contents shall be placed therein.

Unloading of Cars and Vessels—Purchaser shall provide adequate facilities for the prompt unloading of all tank cars, freight cars and vessels, and shall promptly receive and unload shipments, returning empty cars as instructed by Seller. Purchaser shall pay demurrage, car rental, charter hire, and other damages for the time any cars or vessels are held beyond forty-eight (48) hours after arrival at destination.

Purchaser's Requirements—Purchaser's requirements mean all the product consumed, sold and/or otherwise handled by Purchaser in his business or other operations during the period of this agreement. If the contract covers the requirements of the Purchaser, it will be limited to the time and places and to the kind or kinds of business or operation specified, and also to the normal requirements of the Purchaser at existing and specified plants or places of business, unless otherwise specified in the contract.

Deliveries Delayed or Prevented—The Seller shall not be liable in damages or otherwise when deliveries are delayed or prevented by fire, storm, flood, war, rebellion, insurrection, riot, strike, differences with workmen, failure of carriers to transport or furnish facilities for transportation or for delay or failure in delivery when the supplies of the Seller, or the facilities of production, manufacture, transportation or distribution, which otherwise would be available to the Seller, are impaired by the order, requisition or necessity of any government or acting authority, or when such delay or failure is due to any cause whatsoever beyond the control of the Seller, whether similar to or dissimilar from the causes here enumerated.

Ethyl and Other Motor Fuel Antiknock Compounds — In respect of any motor fuel which may contain either an "Ethyl" or any other antiknock compound(s), this agreement is subject to (a) all the provisions contained in the agreements under which Seller is licensed to manufacture and sell motor fuel containing said compounds and (b) compliance by Purchaser with all such provisions, rules, regulations and orders now in existence or which may hereafter be issued by the licensor or any governmental authority having jurisdiction insofar as the same apply to motor fuel purchased by Purchaser from Seller. If Purchaser shall fail or refuse to comply therewith, Seller may either suspend deliveries of such motor fuel or terminate this agreement in respect to such motor fuel.

Motor Fuel Below 60 Octane—If this contract covers a motor fuel below 60 octane, Seller shall not be obligated to deliver the same until (a) Seller has an adequate supply thereof at its plant from which deliveries shall be made to Purchaser and/or (b) adequate facilities for the receipt and handling thereof have been installed by Purchaser.

Change of Brand Name—Seller, in its uncontrolled discretion, may at any time change the brand name or any distinctive designation of any of its products. Should it do so, this contract shall be deemed to cover product(s) of the new name(s) and/or designation(s) to the same extent as if said name(s) or designation(s) were specifically set forth herein.

Discontinuance of Products—Seller reserves the right to discontinue the sale in Purchaser's territory of any product named herein. Should Seller do so, Seller shall not thereafter be obligated to make deliveries hereunder of such product. If, however, Seller shall sell in the territory in which deliveries are made to Purchaser another brand in place of a discontinued one, such brand shall be substituted for the one discontinued. In either case, Seller shall thereafter be obligated to sell and deliver and Purchaser shall be obligated to buy, receive and pay for whatever quantity of other and/or substituted brands as shall be requisite in order that the aggregate quantity obligation set forth in Clause First hereof shall be performed.

Payments—The Purchaser shall pay for goods without discount or deduction except as stated in the contract; and if at any time the financial responsibility of the Purchaser shall become impaired or unsatisfactory to the Seller or in the Seller's opinion inadequate to meet the obligations hereunder, cash payments or satisfactory security may be required. A failure to pay any amount when due may at the option of the Seller terminate the contract as to further deliveries, and no forbearance, course of dealing, or prior payment, shall affect this right of the Seller.

Claims—Any claims for defect or variance in quality or shortage in quantity shall be made, and the Seller shall be notified and given an opportunity to inspect, within two days after the products or goods are delivered, except that if delivery is made in equipment furnished by the Seller such notice and opportunity shall be given before the products or goods are unloaded; and if delivery is made in equipment furnished by the Purchaser such notice and opportunity shall be given before the products or goods move from point of shipment. If equipment furnished by the Seller is in bad order or leaking the Purchaser shall notify the carrier and secure examination by the authorized agent of the carrier as to the condition of the shipment before the same is unloaded. Failure of the Purchaser to comply with these requirements shall operate as a waiver of any and all claims by the Purchaser.

Taxes — Purchaser shall pay Seller amounts equivalent to any tax and/or duty (not otherwise paid by Purchaser) now or hereafter imposed, directly or indirectly, by any domestic or foreign governmental authority or agency, and any increases in such tax or duty, on, in respect of, or measured by (a) this agreement, (b) the goods covered by this agreement or any material contained in such goods and/or (c) the manufacture, sale, use, and/or other handling of said goods or material; and the Seller, upon payment of or liability for such tax or duty, shall bill Purchaser for, and the Purchaser shall pay the amount thereof.

Monthly Shipments—Shipments or deliveries shall be in equal monthly quantities unless otherwise stated in the contract, the Purchaser having the option of varying the monthly quantities by 10 per cent, provided that, subject to other provisions of this contract, the agreed quantity must be taken within the time fixed.

Approximate Quantities—In case deliveries are made in carload, boatload, or tank wagon lots, deliveries within 10 per cent of amounts called for by the contracts or any installment thereof shall be deemed sufficient deliveries by the Seller, only the actual amounts delivered to be paid for.

Trade Marks and Names — Purchaser shall not sell products purchased from others under the trade mark or trade name of Seller. Purchaser, however, with Seller's consent (which may be withdrawn at any time or from time to time), may use the trade marks or trade names of Seller to identify and advertise Seller's trade marked and/or branded products handled by Purchaser. Such use, if consent thereto be given by Seller, shall be strictly in accordance with conditions imposed and directions given as to the manner of such use to Purchaser by Seller from time to time.

Notices—Any notice to be given hereunder shall be in writing and shall be deemed to have been duly given if and when deposited in the United States mail, properly stamped and addressed to the party for whom intended at the address of such party herein specified, or when delivered personally to such party at such address.

Assignability — This contract is not assignable by the Purchaser except with the written consent of the Seller.

of Products, Payments, Taxes, Trade Marks and Names, Monthly Quantities, Notices and Assignability same as those in Distributor's Marginal Contract printed in full here. (Additions or alterations of other provisions follow):

Deliveries Delayed or Prevented—The Seller shall not be liable in damages or otherwise when deliveries are delayed or prevented by fire, storm, flood, war, rebellion, insurrection, riot, strike, differences with workmen, failure of carriers to transport or furnish facilities for transportation, or for delay or failure in delivery when the supplies of the Seller, or the facilities of production, manufacture, transportation or distribution, which otherwise would be available to the Seller, are impaired by the order, requisition or necessity of any government or acting authority, or when such delay or failure is due to any cause whatsoever beyond the control of the Seller, whether similar to or dissimilar from the causes here enumerated.

COMMERCIAL CONSUMER CONTRACT

FOR GASOLINE AND OTHER MOTOR FUELS

CONTRACT OF SALE made ....., 19.., between..... (Name and address of company), hereinafter called "Seller," and ..... (Name and address of consumer), hereinafter called "Purchaser."

FIRST: Sale; Products; Price—Seller hereby agrees to sell and deliver, and Purchaser agrees to buy, receive and pay for ..... (Here insert quantity) of motor fuel. All products purchased hereunder are for Purchaser's own consumption and not for resale to any person or in any manner whatsoever. Purchaser represents that Purchaser is a Commercial Consumer as said term is defined in the Interpretations of the Code of Fair Competition for the Petroleum Industry. In the performance of their respective obligations hereunder, Seller will deliver and Purchaser will receive and pay for the following grades and/or brands of the kind and quality marketed by Seller at time and place of delivery at the prices below stated: (Division of grades, brands and quantities as outlined in Distributor's Marginal Contract.)

Prices—Seller's tank wagon price in effect at time and place of delivery for the grade of product delivered as posted at Seller's plant from or at which delivery is made, except that, on each delivery of less than 25 gallons, the price shall be increased 2 cents per gallon.

SECOND: Discounts—If deliveries of motor fuel of 60 Octane or greater aggregate over 3,000 gallons in any month, Seller shall allow Purchaser a discount of 2 cents per gallon on such deliveries for said month. If deliveries of motor fuel of less than 60 Octane aggregate over 3,000 gallons in any month, Seller shall allow Purchaser a discount of 1 cent per gallon on such deliveries for said month.

All deliveries of 25 gallons or more shall be charged or invoiced at the posted tank wagon prices. No discount shall be paid or allowed at time of delivery. Any discounts as aforesaid shall be due and payable or credited within the first twenty-five (25) days of the month following that in which deliveries are made.

The term "month" as used in this section means a calendar month. Discounts for deliveries during fractional parts of calendar months at the commencement and ending of the contract period shall be computed proportionately.

At the end of the contract period the average monthly deliveries bracketed by grades as aforesaid (that is to say motor fuel of 60 octane or more shall be combined and treated in one bracket and motor fuel of less than 60 octane shall be separately treated in another bracket) shall be computed and the discounts on said respective averages shall be ascertained. If the aggregate of said discounts so computed for either bracket shall exceed the aggregate discounts allowable on the actual deliveries in said bracket, Seller shall allow and pay or credit Purchaser the amount of such excess.

THIRD: Place of Delivery—Deliveries shall, at Purchaser's option, be either (a) by Seller's tank wagons or trucks at Purchaser's place of business at ..... or (b) into storage containers of Purchaser at Seller's bulk plant(s) at ..... Under no circumstances shall any deliveries be made into fuel tanks attached to or part of automobiles, trucks, tractors, graders, ditching machines and similar equipment.

FOURTH: Terms of Payment—(Same as Distributor's Marginal Contract.)

FIFTH: Duration of Contract—This contract shall continue in effect for one year from ....., 193.., to ....., 193.., provided, however, that Seller at any time shall have the option of terminating this contract at the end of any calendar month by giving Purchaser not less than 30 days prior written notice. Either party at its option, in addition to all other available remedies, may terminate this contract forthwith upon the other's failure to perform any of the obligations imposed upon the other by this contract.

SIXTH: Uniform Contract—(Same as Distributor's Marginal Contract.)

SEVENTH: Approval—(Same as Distributor's Marginal Contract.)

EIGHTH: Other Provisions — (Same as Distributor's Marginal Contract.)

Provisions of Contract

N.I.R.A. and Activities Thereunder, Entirety of Contract, Waivers, Deliveries in Steel Barrels, Deliveries Delayed or Prevented, Ethyl and Other Motor Fuel Antiknock Compounds, Motor Fuel Below 60 Octane, Change of Brand Name, Discontinuance of Products, Payments, Claims, Taxes same as those in Distributor's Marginal Contract printed here in full. (Additions or alterations of other provisions follow):

Purchaser's Requirements—If the contract covers the requirements of the Purchaser, it will be limited to the time and places and to the kind or kinds of business or operation specified, and also to the normal requirements of the Purchaser at existing and specified plants or places of business, unless otherwise specified in the contract.

Monthly Shipments—Shipments or deliveries shall be in equal monthly quantities unless otherwise stated in the contract, the Purchaser having the option of varying the monthly quantities by 10 per cent, provided that, subject to other provisions of this contract, the agreed quantity must be taken within the time fixed.

Notices—Any notice to be given hereunder shall be in writing and shall be deemed to have been duly given if and when deposited in the United States mail, properly stamped and addressed to the party for whom intended at the address of such party herein specified, or when delivered personally to such party at such address.

Assignability—This contract is not assignable by the Purchaser except with the written consent of the Seller.

COMMISSION AGENCY AGREEMENT

FOR GASOLINE AND/OR OTHER MOTOR FUELS WHEN AGENT OWNS BULK PLANT FACILITIES

AGREEMENT, dated ....., 19.., between..... (Name and address of company), hereinafter called "Company," and ..... (Name of agent) of ..... (Address of agent), hereinafter called "Agent";

WITNESSETH:

FIRST: The Company hereby appoints the Agent, and the Agent hereby accepts the appointment, as Agent for the Company at .....

The Agent shall furnish surety bond acceptable to the Company in form and amount to protect and indemnify the Company fully against loss of any moneys, values, products, equipment or property entrusted to him or coming under his control or into his hands as such Agent.

Agent shall devote Agent's entire business time and best efforts to the performance of Agent's duties in accordance with this agreement, and shall not engage directly or indirectly in any occupation that might interfere with Agent's duties hereunder.

(The following provision designated "Second" or any part thereof may be used or not used at the option of the parties to the contract.)

SECOND: Agent's sales of products without Company's prior written consent shall not extend beyond the limits of the following territory:

This provision shall be deemed (or shall not be deemed) to give Agent exclusive territorial rights.

THIRD: The Agent's duties are hereby fixed by this Agreement, by the rules and practices of the Company and by instructions issued by the Company from time to time.

FOURTH: The Agent shall:

(1) Strictly observe and obey the Company's instructions and faithfully perform all duties connected with the agency.

(2) Promptly, correctly and in strict accordance with Company's instructions, account for all Company moneys, goods, products, equipment, or other property in Agent's possession, or coming into Agent's custody, and pay the Company for any shortages which may develop at any time.

(3) Sell the products of the Company for cash, and shall not extend credit to any customer without prior written consent, and not exchange or agree to exchange the Company's products for property or merchandise for private use or account.

(4) Personally pay the Company on demand (a) the sum due on any account opened by Agent without authority, (b) any portion of any credit account which has been sold in excess of the credit limit placed thereon by the Company, and (c) any other losses suffered by the Company as a result of Agent's violation of any provision of this agreement. The Company shall not be under any obligation to make any attempt to collect such accounts or to assign any part of such accounts to Agent until the Company shall have received full settlement thereof.

(5) Not sell the Company's products, directly or indirectly, at less than Company's authorized prices.

(6) Not use the Company's goods or funds in any way for private purposes and not cash out of the Company's funds personal checks for customers or other persons.

(7) Not retain the amount of compensation due Agent from or as a charge against funds or any other property of the Company for which Agent is accountable.

(8) Bear all expenses incident to the proper operation of the agency and the maintenance of facilities and equipment, including, without limitation, (a) cost of painting, lettering and general maintenance of the bulk station facilities, service station facilities, trucks, miscellaneous equipment, whether owned by Agent or Company; and (b) cost of handling, installing and removing gasoline and lubricating oil pump and tank equipment, whether or not said equipment be owned by the Company, which installation and handling by the Agent, if the Company owns the equipment, shall in no manner affect the Company's title. Title to all facilities and material used in installing the Company's equipment shall pass to the Company upon completion of installation, the Agent's compensation therefor being taken into account when establishing rates of commission hereunder.

(9) Except where specific provision to the contrary is made herein, pay all expenses of every kind and supply in a manner satisfactory to the Company all facilities and equipment necessary to the performance of the Agent's obligations hereunder.

(10) At Agent's expense, furnish all assistants and employes Agent may require for the proper and diligent operation of said agency, and assume full direction and control over and responsibility for all such assistants and employes; and shall procure and keep in force a policy satisfactory to the Company in respect of workmen's compensation and/or employer's liability insurance covering all employes of the Agent and shall furnish the Company with a certificate of such insurance, it being understood that the foregoing provision shall not have the effect of making any employes of the Agent employes of the Company.

(11) Indemnify and save the Company harmless from loss arising out of or by virtue of all damage to property and/or injury to person(s) (whether or not such injury result in death) occasioned by the acts of the Agent, Agent's assistants and/or employes.

(12) Strictly abide by the provisions of the Code of Fair Competition for the Petroleum Industry promulgated by the President of the United States pursuant to the provisions of the National Industrial Recovery Act.

(13) Not permit any assistant or employe or other person who is not of mature age and judgment to fill any container with, handle, ship or deliver any refined oil or gasoline at or from the Agent's plant, store rooms or vehicles.

(14) Not assign this agreement without the prior written consent of the Company.

(15) Pay any indebtedness accruing to the Company at ....., and make remittances in the following manner:

.....

(16) Not incur any obligations of any kind whatsoever in the name of the Company without the Company's prior written consent.

(17) Be liable to the Company for any demurrage or storage charges on account of Agent's failure to unload promptly tank cars or other railroad cars, or to take out promptly merchandise shipments consigned to Agent.

(18) Reimburse the Company for all taxes paid by it or for which it may be liable on or in connection with facilities and equipment used by Agent hereunder and on sales made and business done by or through Agent hereunder.

FIFTH: The Company shall:

(1) Have the right at its option to withhold any commissions, money or anything of value in its possession belonging to or due Agent, for the purpose of reimbursing itself for any amounts due hereunder from Agent at any time.

(2) Have the right to reject, with or without cause, any orders, proposed contracts, or orders made pursuant to contracts.

(3) In the event of the termination of the agreement, have the right, for a period of not to exceed three (3) months following the date of such termination, to use, as it sees fit, all Agent's storage facilities for petroleum products located at Agent's bulk plant premises at..... and to replenish its stock of merchandise in such facilities, and sell and deliver its products from the said premises, and remove all its products and other properties therefrom during the said period, and shall pay a rental at the rate of $..... per month for the period said facilities are so used.

(4) Pay freight on products shipped.

(5) And does not warrant the condition or fitness for purpose of any equipment furnished to the Agent.

(6) Subject to the other provisions hereof, pay the Agent the following commissions based on less than carload sales and transfers:

.....

Anything to the contrary hereinabove notwithstanding, the commissions payable hereunder, when expressed in cents per gallon on average monthly sales and added to the undivided dealer margin, applicable in Agent's territory, shall not exceed the prevailing gross marketing margin determined for guaranteed marginal distributors, jobbers or wholesalers

pursuant to the provisions of that certain agreement dated December 7, 1933, in regard to distributor and dealer margins and approved by the Petroleum Administrator on ....., 1934.

The commissions above provided include all rental or other compensation for the use by the Company of real and personal property owned by the Agent and used hereunder.

These commissions shall be subject to deductions herein mentioned and/or counter-claims by the Company, and, after deductions therefor have been made, the resulting sums shall be in full payment for all services rendered by the Agent hereunder.

All commissions payable hereunder shall be paid to the agent as follows:

.....

SIXTH: (1) No commission shall be paid on carload transactions unless specifically agreed to in writing prior to the date such sales or transfers are made.

(2) The Agent shall not be entitled to (a) commissions on any accounts or bills receivable past due over 4 months or turned over to an agency or attorney for attention and/or collection, or (b) commissions on products returned to stock or products purchased from competitors for resale.

All commissions will be computed on current sales and transfers. From each current commission statement the Company will deduct commissions which have previously been allowed on those accounts or bills receivable past due over 4 months or turned over to any agency or attorney for attention and/or collection.

SEVENTH: (1) This agreement shall continue in full force and effect until terminated by either party.

(2) Any and all agreements heretofore existing in reference to Agent's employment or compensation are hereby superseded and cancelled, without prejudice, however, to rights already accrued. Modification of this agreement shall not be binding unless signed by the parties hereto.

EIGHTH: This agreement, or any modification thereof shall not be binding upon Company until approved and signed on its behalf by a duly authorized Executive Officer, ..., or ..... Commencement of performance hereunder prior to approval and signing as above stipulated, in no case shall be construed as a waiver by Company of this requirement.

IN WITNESS WHEREOF, the parties have duly executed this agreement the day and year first above written.

RESELLERS TANK SHIP CONTRACT

(SPOT PRICE BASIS)

FOR GASOLINE AND OTHER MOTOR FUELS

CONTRACT OF SALE made ....., 193.., between ..... (Name and address of company), hereinafter called "Seller," and ..... (Name and address of distributor), hereinafter called "Purchaser."

FIRST: Sale; Products; Price—Seller hereby agrees to sell and deliver and Purchaser agrees to buy, receive and pay for .....(Here insert quantity) of motor fuel, in full tank ship lots. In the performance of their respective obligations hereunder, Seller will deliver and Purchaser will receive and pay for the following grades and/or brands of the kind and quality marketed by Seller at time and place of delivery at the prices below stated: (Division of grades, brands and quantities same as outlined in Distributor's Marginal Contract.)

Prices—Seller's tank ship cargo spot price in effect at time of shipment for the grade delivered, as posted at Seller's plant designated in Clause Fourth hereof.

Purchaser shall pay all freight, wharfage, transportation, lighterage, if any, insurance, and other charges.

Anything to the contrary herein notwithstanding:

(a) Seller may make any delivery hereunder from any refinery or terminal other than that hereinafter designated and shall increase its invoice price for the product so delivered, to an amount equivalent to what the cost to Purchaser at destination would have been had the delivery thereof been made from the refinery or terminal specified in Clause Fourth.

(b) Seller may deliver any of or all the products covered by this contract to Purchaser at point of destination by any other means of transportation whatsoever than as herein designated and shall increase its invoice price to Purchaser to an amount equivalent to what the cost to Purchaser at destination would have been had the delivery thereof been made as designated herein.

Seller by this agreement dos not guarantee to the Purchaser any minimum gross marketing margin or differential between Seller's authorized service station prices in Purchaser's territory and the spot price hereinabove referred to. Purchaser, at time of execution of this contract, was offered an agreement guaranteeing Purchaser's margin, and Purchaser elected to purchase products from Seller on a spot price basis as herein provided.

If any prevailing guaranteed margin to distributors be greater than Purchaser's gross marketing margin, Seller shall not terminate this contract or substitute therefor a guaranteed margin contract, nor shall Seller in such case terminate or modify this agreement by allowing to Purchaser any trade discount.

SECOND: Resale Prices—(Same as contained in Distributor's Marginal Contract.)

THIRD: Delivery—F.O.B. tank ship properly consigned to Purchaser's destination.

FOURTH: Place of Delivery.

FIFTH: Shipment — Shipments shall be made at the times and in the quantities designated.

SIXTH: Destination.

(The following provision designated Seventh, or any part thereof, may be used or not used at the option of the parties to the contract.)

SEVENTH: Territory.

NINTH: Place of Payment—Seller's office at.....

TENTH: Duration of Contract—(Same as in Distributor's Marginal Contract.)

ELEVENTH: Vessel Berth: Demurrage—If Purchaser furnishes any vessel, Purchaser shall give Seller reasonable notice of the time of arrival of said vessel for loading and Seller shall furnish, without cost to Purchaser, berth at which such vessel may lie safely afloat at all stages, together with the necessary connections and facilities for loading, and shall load the product promptly. When a vessel is delayed in consequence of failure by the Seller to comply with these provisions, the Seller shall pay demurrage at the prevailing rate according to the size of the vessel used. In no event shall Seller be obliged to furnish berth for a vessel having an overall length in excess of.....feet or draft in excess of ..... feet.

If the Seller furnishes the vessel for transportation of the product from point of delivery to point of destination, the Purchaser, immediately upon the arrival of any vessel shall furnish without cost berth at which the vessel may lie safely afloat at all stages, together with the necessary connections and facilities for receiving and shall receive the product as fast as it can be discharged. In ports where fire is not allowed on board vessels the Purchaser shall find and furnish steam for discharging purposes. The maximum free unloading time for tank ships is 48 running hours, Sundays and holidays excepted, unless used. When a vessel is delayed in consequence of failure by the Purchaser to comply with these provisions, or through any fault or negigence of the Purchaser, the Purchaser shall pay demurrage at the prevailing rate according to the size of the vessel used.

TWELFTH: Quantity and Quality Tests—The products shall be inspected for quality and gauged for quantity at time and place of delivery by representatives of the parties jointly as follows:

(a) Samples shall be taken from Seller's shore tanks and tested for quality. Prevailing A.S.T.M. methods of tests shall be used.

(b) Quantity shall be determined by gauging shore tanks of Seller before, during and after loading. Quantity shall be computed on the basis of a barrel of 42 U. S. gallons of 231 cubic inches each, adjusted to 60° F. in accordance with correction tables of the United States Bureau of Standards.

In the event that a representative of either party is not present at the time of testing and gauging, the findings of the representative of the other party shall be binding and conclusive.

THIRTEENTH: Uniform Contract—This form of contract is the official form of Resellers Tank Ship Contract, approved by the Planning and Co-ordination Committee for the Petroleum Industry, and approved by the Petroleum Administrator.

FOURTEENTH: Approval — This agreement or any modification thereof shall not be binding upon Seller until approved and signed on its behalf by ..... Commencement of performance hereunder prior to approval and signing as above stipulated in no case shall be construed as a waiver by Seller of this requirement. (The use of the foregoing clause shall be optional with Seller.)

FIFTEENTH: Other Provisions.

Provisions of Contract

Petroleum Code, N.I.R.A. and Activities Thereunder, Entirety of Contract, Waivers, Unloading of Cars and Vessels, Purchaser's Requirements, Deliveries Delayed or Prevented, Ethyl and Other Motor Fuel Antiknock Compounds, Motor Fuel Below 60 Octane, Change of Brand Name, Discontinuance of Products, Claims, Taxes, Monthly Shipments, Approximate Quantities, Trade Marks and Names, Notices, Assignability same as those in Distributor's Marginal Contract printed here in full. (Additions or alterations of other provisions follow):

Payments — The Purchaser shall pay for goods without discount or deduction except as stated in the contract; and if at any time the financial responsibility of the Purchaser shall become impaired or unsatisfactory to the Seller or in the Seller's opinion inadequate to meet the obligations hereunder, cash payments or satisfactory security may be required. On failure of Purchaser to pay any amount when due Seller may terminate the contract as to further deliveries, and no forbearance, course of dealing, or prior payment, shall affect this right of the Seller.

CONFIRMATION OF ACCEPTANCE AND ORDER

SPOT TANK CAR SALES

FOR GASOLINE AND OTHER MOTOR FUELS

(Date, Name and Address)

We hereby acknowledge receipt of your order for .... tank cars of ..... motor fuel and we hereby confirm the acceptance of such order on the following terms and conditions, pursuant to which delivery will be made:

FIRST: Price — Our spot tank car price in effect at time of shipment for the above grade of motor fuel as posted at our plant at..... Such price shall be f.o.b. said plant. You shall pay all freight and other transportation charges.

We may make shipment from any plant other than that above specified and shall increase our invoice price for the product so delivered to an amount equivalent to what the cost to you at destination would have been had the delivery thereof been made from the plant above specified.

SECOND: Delivery and Destination—Delivery shall be f.o.b. tank cars at said plant, selected by us and properly consigned to you at your bulk plant at .....

Shipments shall be made at the times and in the quantities below designated:

.....

THIRD: Resale Prices—From time to time we shall classify the resellers who purchase motor fuel from you. Our classification and our determination of the discounts and allowances, if any, which may be granted by you to any class of reseller shall be conclusive. In regard to each grade of motor fuel, we shall currently notify you what are our authorized (a) service station prices and (b) allowances or discounts to each class of reseller and we shall advise you the proper method of determining prices to all classes of resellers purchasing motor fuel from you. You shall post in the manner required by the Petroleum Code as your prices and discounts those supplied by us. You shall resell said motor fuel at service stations and to resellers at our authorized price as set forth in our notice in effect at time and place of resale by you applicable to the grade of product, type of resale and method of delivery involved in the resale transaction. You shall require any reseller buying from you to resell the motor fuel, sold by you to such reseller, at our authorized price in effect at time and place of resale by said reseller applicable to the grade of product, type of resale and method of delivery involved in such resale transaction, and shall incorporate a provision to that effect in each contract of sale with each such reseller.

The intent of this provision is that you shall strictly maintain and cause resellers buying from you to maintain the prices of our motor fuel designated from time to time by us for the territory in which you do business.

If you shall violate any of the foregoing provisions we shall suspend further deliveries and/or shall not make any further sales to you if and so long as required so to do by a Committee established pursuant to the provisions of Sections 2 and 3 of an agreement, dated December 7, 1933, relating to uniform contracts and other matters, and approved by the Planning and Co-ordination Committee for the Petroleum Industry and the Petroleum Administrator, and in addition we shall have the right to discontinue all further deliveries.

FOURTH: Terms of Payment.

.....

Credit terms shall not exceed those permitted by the Code of Fair Competition for the Petroleum Industry.

Discounts for cash, if any, shall not be allowed from or be applied to or computed upon taxes or freight. Payment shall be made at our office, from which invoice is issued.

FIFTH: The terms and conditions printed on the reverse side are incorporated herein and made a part hereof. In said terms and conditions we are referred to as "Seller" and you are referred to as "Purchaser."

Very truly yours,

.....

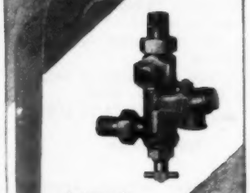
Provisions of Order

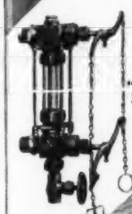
Petroleum Code, Entirety of Contract, Unloading of Cars, Deliveries Delayed or Prevented, Ethyl and Other Motor Fuel Antiknock Compounds, Claims, Taxes, Approximate Quantities, Trade Marks and Names, Notices same as those in Distributor's Marginal Contract printed here in full. (Additions or alterations to other provisions follow):

N.I.R.A. and Activities Thereunder—If any provision herein contained in Seller's opinion depends for its validity in whole or in part on the National Industrial Recovery Act or any agreement made pursuant thereto or the Petroleum Code, then, on the expiration of said Act or the termination of said agreement or of the applicable Code provision or the invalidation of any thereof, in Seller's opinion, by a court of competent jurisdiction, such provision shall be ineffective without, however, in any

"ALL IRON" LIQUID LEVEL GAGE

FOR 500 LBS. WORKING PRESSURE AT 750° F.





PENBERTHY PRODUCTS

HERE is a liquid level gage that is ideally suited to the difficult service requirements of the oil industry. It is made from a special high strength alloy iron and is of exceptionally rugged construction throughout. It is used wherever the liquid handled makes iron preferable to brass, and is recommended for working pressures to 500 pounds per square inch at 750° F.

The Penberthy "All Iron" Liquid Level Gage is automatic in operation. Ball check valves in both the upper and lower body close immediately and positively to prevent the loss of liquid when the glass is broken; the hand operated stop valves may then be closed with safety and a new glass inserted. The drain cock is integral with the lower gage body and is provided with thread for drain connection.

Penberthy Liquid Level Gages are carried in stock by supply houses everywhere.

PENBERTHY INJECTOR COMPANY

Manufacturers of Quality Products Since 1886

DETROIT, MICHIGAN WINDSOR, ONTARIO

manner nullifying any other provision herein contained.

Payments—The Purchaser shall pay for goods without discount or deduction except as stated herein; and if at any time the financial responsibility of the Purchaser shall become impaired or unsatisfactory to the Seller or in the Seller's opinion inadequate to meet the obligation hereunder, cash payments or satisfactory security may be required. On a failure of Purchaser to pay any amount when due Seller may discontinue further deliveries hereunder.

CONFIRMATION OF ACCEPTANCE AND ORDER

SPOT BARGE AND TANK SHIP SALES

FOR GASOLINE AND OTHER MOTOR FUELS

(Date, Name and Address)

We hereby acknowledge receipt of your order for ..... barge (or tank ship) ..... motor fuel and we hereby confirm the acceptance of such order on the following terms and conditions, pursuant to which delivery will be made:

FIRST: Price—Our spot barge (or tank ship) price in effect at time of shipment for the above grade of motor fuel as posted at our plant at..... Such price shall be f.o.b. said plant. You shall pay all freight, wharfage, lighterage, if any, insurance and other charges.

SECOND: Delivery and Destination—Delivery shall be f.o.b. barge (or tank ship) at said plant, selected by us and properly consigned to you at your terminal at ....

Shipments shall be made at the times and in the quantities below designated:

.....

(Balance of contract identical with Confirmation of Acceptance and Tank Ship Sales form shown above.

Provisions of Order

Petroleum Code, Deliveries Delayed or Prevented, Ethyl and Other Motor Fuel Antiknock Compounds, Claims, Taxes, Approximate Quantities, Trade Marks and Names, Notices same as those in Distributor's Marginal Contract printed here in full. (Additions or alterations of other provisions follow):

N.I.R.A. and Activities Thereunder—If any provision herein contained in Seller's opinion depends for its validity in whole or in part on the National Industrial Recovery Act or any agreement made pursuant thereto or the Petroleum Code, then, on the expiration of said Act or the termination of said agreement or of the applicable Code provision or the invalidation of any thereof, in Seller's opinion, by a court of competent jurisdiction, such provision shall be ineffective without, however, in any manner nullifying any other provision herein contained.

Entirety of Contract—No prior stipulation, agreement or understanding of the parties or their agents in respect to the subject matter shall be valid or enforceable unless embodied herein or covered by these provisions.

Vessel Berth: Demurrage. If Purchaser furnishes any vessel, Purchaser shall give Seller reasonable notice of the time of arrival of said vessel for loading and Seller shall furnish, without cost to Purchaser, berth at which such vessel may lie safely afloat at all stages, together with the necessary connections and facilities for loading, and shall load the product promptly. When a vessel is delayed in consequence of failure by the Seller to comply with these provisions, the Seller shall pay demurrage at the prevailing rate according to the size of the vessel used. In no event shall Seller be obliged to furnish berth for a vessel having an overall length in excess of .....feet or draft in excess of..... feet.

If the Seller furnishes the vessel for transportation of the product from point of delivery to point of destination, the Purchaser, immediately upon the arrival of any vessel shall furnish without cost berth at which the vessel may lie safely afloat at all stages, together with the necessary connections and facilities for receiving and shall receive the product as fast as it can be discharged. In ports where fire is not allowed on board vessels the Purchaser shall find and furnish steam for dicharging purposes. The maximum free unloading time for tank ships is 48 running hours, Sundays and holidays excepted, unless used. When a vessel is delayed in consequence of failure by the Purchaser to comply with these provisions, or through any fault or negligence of the Purchaser, the Purchaser shall pay demurrage at the prevailing rate according to the size of the vessel used.

Quantity and Quality Tests. The products shall be inspected for quality and gauged for quantity at time and place of delivery by representatives of the parties jointly as follows:

(a) Samples shall be taken from Seller's shore tanks and tested for quality. Prevailing A.S.T.M. methods of tests shall be used.

(b) Quantity shall be determined by gauging shore tanks of Seller before, during and after loading. Quantity shall be computed on the basis of a barrel of 42 U. S. gallons of 231 cubic inches each, adjusted to 60° F. in accordance with correction tables of the United States Bureau of Standards.

In the event that a representative of either party is not present at the time of testing and gauging, the findings of the representative of the other party shall be binding and conclusive.

Payments—The Purchaser shall pay for goods without discount or deduction except as stated herein; and if at any time the financial responsibility of the Purchaser shall become impaired or unsatisfactory to the Seller or in the Seller's opinion inadequate to meet the obligations hereunder, cash payments or satisfactory security may be required. On a failure of Purchaser to pay any amount when due Seller may discontinue further deliveries hereunder.

Marketing and Purchase Agreements Are Approved

(Continued from Page 11)

3. The differential of one-half cent per gallon between the margins allowed "divided" and "undivided" resale accounts, respectively, provided for in the second paragraph of Section 2 of the said marketing agreement may be changed and/or amended with respect to any wholesale and/or retail dealers in any locality upon a vote of 75 per cent of the refiners operating in the region, if approved by the Planning and Co-ordination Committee and by me.

4. Before any general or established supply arrangements between any party or parties whatsoever shall be exempted from the margins fixed for distributors, jobbers, and/or wholesalers, as provided in the fifth paragraph of Section 1 of the said marketing agreement, such exemptions shall be approved by the Petroleum Administrator.

5. Under the second paragraph of Section 2 of the marketing agreement, lease and agency, lease and license and any other exclusive dealing sales contracts made since August 19, 1933, which relate to the sale, for purposes of resale, of gasoline and/or other motor fuel, must be cancelled forthwith. Any such contracts renewed since August 19, 1933, in accordance with Article 5, Rule 19, Paragraph b of the code, must be cancelled at the earliest cancellation date permissible under their terms. All other such contracts which expire prior to August 19, 1934, shall not be renewed and all contracts having a cancellation clause must be cancelled on or before that date. All future contracts for the sale of gasoline and/or other motor fuel shall be made on the standard forms of contract approved by the Planning and Co-ordination Committee for the petroleum industry and by me.

6. That Section 4 of the said marketing agreement shall be and is hereby disapproved.

7. Nothing in the marketing agreement shall be construed to prevent the payment to carload and cargo brokers and marketers of commissions on business ordinarily done by them.

8. That the stabilization committees provided for in Paragraph 3 of Section 1 of the said marketing agreements shall consist wherever possible to two representatives from two integrated companies and one representative from an independent refiner.

Approved and promulgated this nineteenth day of January, 1934.

HAROLD L. ICKES.

Stabilization Order Approved

Whereas, certain members of the petroleum industry, after a prolonged and careful consideration of the needs of the aforesaid industry, have entered into an agreement to aid in the stabilization of the industry by purchasing, holding and liquidating distress gasoline, and have submitted this agreement to me under the code of fair competition for the petroleum industry and under the National Industrial Recovery Act; and

Whereas, this agreement has been approved and recommended to me by the Planning and Co-ordination Committee under the code of fair competition for the petroleum industry; and

Whereas, suitable public notice of the aforesaid agreement has been given pursuant to Section 5, Article 1 of the code of fair competition for the petroleum industry, approved by the President, August 19, 1933; and

Whereas, I have carefully and impartially considered this agreement and have found and determined that it is not designed to promote monopoly or to eliminate or oppress smaller enterprises, but will serve to effectuate the purposes of the National Industrial Recovery Act, and the code of fair competition for the petroleum industry by eliminating wasteful and unfair competitive abuses and thereby conserving an essential natural resource;

Now, therefore, pursuant to the authority vested in me * * * I hereby order that this agreement be and it is hereby approved.

Approved and promulgated this nineteenth day of January, 1934.

HAROLD L. ICKES.

Modification II

Whereas, I have this day approved a purchase agreement submitted to me under Title 1 of the National Industrial Recovery Act and under the code of fair competition for the petroleum industry, approved pursuant to such act; and

Whereas, Subsection (b) of Section 10 of Title 1 of said act provides that "The President may, from time to time, cancel or modify any * * * approval issued under this title;"

Now, therefore, pursuant to the authority vested in me * * * my approval of the said purchase agreement is hereby modified so as to provide the following:

1. That the administrator may at any time confer with the Planning and Co-ordination Committee and may redetermine in the light of existing conditions the proper objective to be attained with respect to the total gasoline stocks in the United States on July 1, 1934.

2. That the National Petroleum Agency shall, under rules and regulations established by its board of governors and satisfactory to the administrator, provide for the suitable liquidation of gasoline stocks purchased and held by the said agency, to the end that all parties within the industry may have an equal opportunity to obtain gasoline at fair market prices.

3. That the administrator or his duly authorized representatives may attend the meetings of the board of governors and/or the executive committee and shall have free access to the books and records of the agency. The administrator shall be given due notice of any and all meetings of the board of governors and/or the executive committee.

Approved and promulgated this nineteenth day of January, 1934.

HAROLD L. ICKES.

Order on Contracts

Whereas, Section 2 of an agreement submitted to me December 9, 1933, and approved January 19, 1934, provides that "standard forms of contracts applying to all transactions for the sale of gasoline and/or other motor fuels shall be prepared by the Planning and Co-ordination Committee with the approval of the petroleum administrator, and the parties to this agreement shall use only such forms of contract in such transactions"; and,

Whereas, the Planning and Co-ordination Committee has submitted to me the attached standard forms of contract to govern such transactions;

Now therefore, these standard forms of contract are hereby approved in the form submitted, subject, however, to the alterations and substitutions indicated therein.

Approved and promulgated this nineteenth day of January, 1934.

HAROLD L. ICKES.

Order on Violations

Whereas, by an order dated January 19, 1934, I approved an agreement, known as the marketing agreement and dated December 7, 1933;

Now therefore, pursuant to the authority vested in me * * * I hereby prescribe the following regulation:

Any person who violates any provision of the said marketing agreement or of a contract entered into pursuant thereto shall be guilty of a violation of Title 1 of the National Industrial Recovery Act, and shall be punishable by a fine of not to exceed $500, or imprisonment for not to exceed six months, or both.

Promulgated this nineteenth day of January, 1934.

HAROLD L. ICKES.

Gulf Coast Water Shipments, December, 1933

Company and terminal—	Crude—Coastwise	Crude—Export	Refined—Coastwise	Refined—Export	Total
Atlantic P. L. Co.:					
Atreco	1,273,139.06	87,025.60	.....	.....	1,360,164.66
Harbor Island	267,950.52	.....	.....	.....	267,950.52
Texas City	200,543.42	.....	.....	.....	200,543.42
Gulf Ref. Co.:					
Port Arthur	256,497.00	.....	1,925,346.11	105,139.84	2,286,982.95
Humble O. & R. Co.:					
Baytown	619,690.42	.....	2,154,787.59	701,298.11	3,475,776.12
Harbor Island	1,345,337.43	.....	.....	.....	1,345,337.43
Ingleside	137,290.56	.....	.....	.....	137,290.56
Texas City	349,838.00	.....	.....	.....	349,838.00
Magnolia Pet. Co.:					
Beaumont	347,573.30	.....	2,281,659.40	.....	2,629,232.70
Pure Oil Co.:					
Smiths Bluff	280,173.00	.....	684,508.00	.....	964,681.00
Shell Pet. Corp.:					
Houston	230,525.43	.....	853,307.15	.....	1,083,832.58
Norco	.....	.....	285,000.12	85,931.76	370,931.88
Standard Oil (La.):					
Baton Rouge	558,352.00	.....	606,784.00	259,534.00	1,424,670.00
Sun Oil Co.:					
Beaumont	1,580,534.03	.....	.....	.....	1,580,534.03
Texas Co.:					
Port Arthur	1,694,870.00	451,497.00	1,707,819.00	517,945.00	4,372,131.00
Miscellaneous:					
Houston	2,350,234.00	184,221.10	882,909.95	834,059.30	4,251,424.35
Total Dec.	11,492,548.17	1,722,743.70	11,382,121.32	2,503,908.01	26,101,321.20
Total Nov.	11,204,437.28	1,725,158.61	12,168,373.99	2,207,723.00	27,096,260.15
Difference	288,110.89	1,002,414.91	787,252.67	296,185.01	994,838.95

Recovery Arithmetic

"High crude costs are tending to make refiners more and more 'cracking conscious' Dollar-a-barrel crude is difficult to meet with a 4½-cent per gallon price at the refinery on gasoline good enough to sell at retail as regular grade" — CHICAGO JOURNAL OF COMMERCE, January 12, 1934

More Dubbscracking is the way to "meet" rising crude prices

Dubbscracking makes more and better gasoline from low-priced charging stock than skimming can make from high-priced crude

The Dubbs refiner is sitting pretty — the higher crude prices go the bigger his advantage

The higher crude prices go the better Dubbscracking pays

Universal Oil Products Co
Chicago Illinois

Dubbs Cracking Process
Owner and Licensor

Canfield Oil Company Completes New Skimming Unit at Coraopolis, Pennsylvania Refinery

By R. C. CONINE

CORAOPOLIS, Pa., Jan. 23.—Ninety-two bubble cap trays, a 100-foot tower and complete temperature-flow control from the panel board explain the high efficiency of the atmospheric distillation and rerun unit just completed at the Coraopolis refinery of Canfield Oil Co.

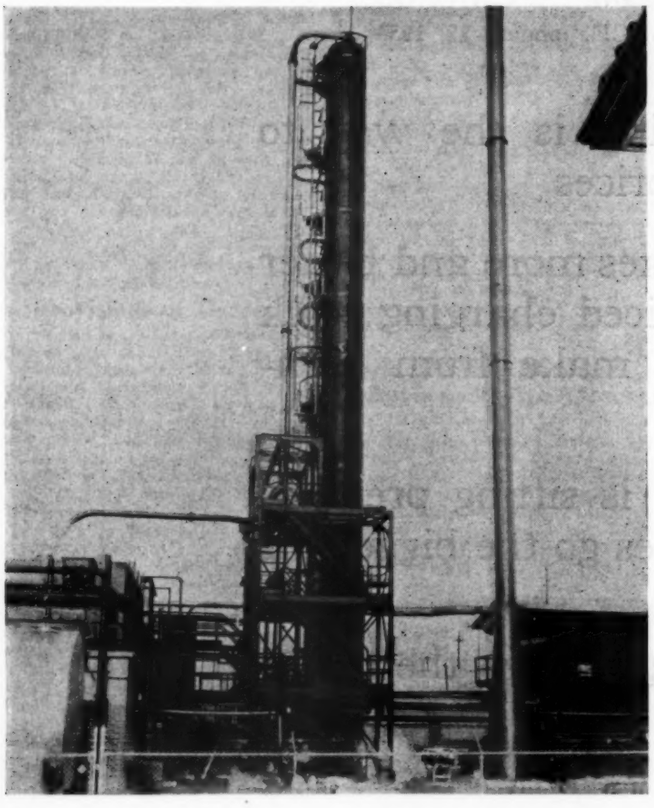
The main fractionating tower is 100 feet high and is equipped with 40 bubble plates above the expansion section, and eight plates below. The first auxiliary stripping column is 50 feet high and is divided into three operating sections. The top section contains six trays and removes light ends from a solvent cut. The middle section, for stripping the kerosene fraction, contains four plates, and the bottom section, which takes the 300° flashpoint distillate, also has four trays.

The second auxiliary tower, or rerun column, is 50 feet high and contains 30 bubble cap trays. The operation of this tower is particularly interesting in that it adds to various recent indications that Pennsylvania Grade crude oil refiners are equipping their plants to meet exacting and unusual specifications of gasoline and naphtha fractions, as well as to maintain their high position in the lubricating oil field.

The typical direct-acting Alco float control is readily recognized, as is the system for switching over to manual control. However, this latter feature is of scarcely more than academic interest in view of the perfection which has been reached by the makers of control and recording instruments. Still, it is well to know that if all the regulating equipment should become inoperative and the instrument panel little more than decorative, it is still possible to operate the system efficiently from the central control room. A liberal use of steam to provide back pressures does the work.

This unit includes a piece of equipment which was scarcely thought of a year ago in connection with the processing of Pennsylvania Grade crude oil, but which has been adopted wholeheartedly in the area after its introduction. This is the crude settling tank. It may strike the western refiner as humorous to single out the old crude settler, but Pennsylvania refiners have found that its use has aided in lowering their Conradson carbon, in facilitating filtration, and some have found that a lessened tendency toward corrosion marked their operations after installation of the settling drum.

The tendency toward a multiplicity of bubble cap trays has been pronounced among Pennsylvania area refiners since it has been found that close fractionation eliminated the necessity for rerunning or "cracking" wax distillates to make them pressable. However, the long residuum method is employed at the Coraopolis refinery of the Canfield company, and this product is found to benefit as substantially by the liberal use of bubble cap trays. An unusual departure in this particular plant is the number of full-sized plates below the expansion section of the principal fractionating column. There are eight of these trays and the engineers in charge say that they add 5 degrees to the flashpoint of a long residuum of a given viscosity. The daily capacity of the new unit is 1,500 bbls.



General view of Canfield Oil Co.'s new Alco distillation unit at its Coraopolis, Pennsylvania refinery

Could Produce Neutrals

The slop wax and wax distillate tower outlets, naturally, are blanked off. It would be a minor matter to switch over to production of neutrals and bright stocks. Motor oils finished from the tower under present operation would be classed as S.A.E. 40 and 50 and heavier. The lighter numbers would be blends with bright stocks and neutrals.

The operation of the principal fractionating tower is indicated in the following data which were taken from a test run shortly after the plant was completed:

Gasoline production, 95° F. initial and 340° F. endpoint, 350 gallons per hour, 25.6 per cent; special solvent, 100° F. flashpoint or better, under 400° F. endpoint, 147 g.p.h., 10.7 per cent; kerosene, 47° A.P.I. gravity, 237 g.p.h., 17.2 per cent; furnace oil, 300° F. flashpoint distillate, 198 g.p.h., 14.5 per cent; gas oil, U.G.I., 155 g.p.h., 11.3 per cent; bottoms, 475° F. to 480° F. flashpoint, 85 sec. viscosity at 210° F., 283 g.p.h., 20.7 per cent.

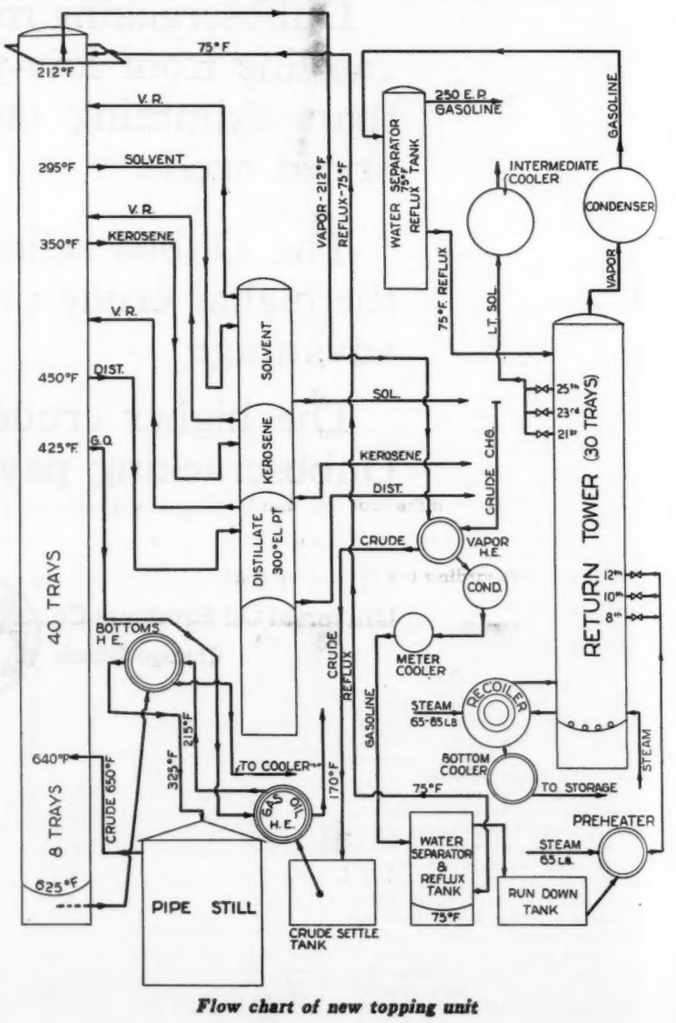
Processing a different Pennsylvania Grade crude oil in another run the yield percentages were as follows: Gasoline, 25 per cent; solvent, 9 per cent; kerosene, 17 per cent; 300 flashpoint distillate, 11 per cent; gas oil, 14 per cent, and bottoms, 89 sec. viscosity at 210° F., 24 per cent. Steam in the auxiliary is at 500° F.

As already pointed out, the solvent, kerosene and distillate streams from the main tower pass to the auxiliary column where they are stripped of light ends. The gas oil and bottoms pass through crude oil heat exchangers to the coolers, and the overhead gasoline cut goes through a crude heat exchanger to the condenser, after-cooler and water separator-reflux tank. This 340 endpoint gasoline may be used in motor fuel blending, or passed to the rerun unit.

Three Gasoline Streams

The gasoline charge to the rerun unit is split into three cuts: an overhead naphtha of lacquer diluent characteristics, a special naphtha of 200° F. initial and 278° F. endpoint, and a residual fraction. Tests on the overhead fraction, which is 47 per cent of the charge, are as follows: Gravity, 73.8° A.P.I.; first drop, 94° F.; 10 per cent, 135° F.; 20 per cent, 151° F.; 30 per cent, 164° F.; 40 per cent, 174° F.; 50 per cent, 184° F.; 60 per cent, 191° F.; 70 per cent,

(Continued on Page 102)



Flow chart of new topping unit

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The Oil and Gas Journal

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Compensations of 1933

This Annual Number of The Oil and Gas Journal reveals an operating record of which the industry has no reason to be proud.

In a year when production should have been reduced it was the largest since 1930.

The strengthening of crude and refined prices in the latter months following the adoption of the petroleum code was not enough to offset low prices earlier in the year which from a price standpoint is described as the worst in the industry's history.

This was reflected in the lowest average service station price, exclusive of taxes, on record.

But 1933 had some compensations. The very fact that matters were at their worst forced a reaction. The demonstrated inadequacy of voluntary and state plans for curtailment of crude production put the issue squarely up to the Federal government. The industry, despairing of stabilization otherwise, welcomed the petroleum code which put new heart into it with the hope of restoring living prices.

The vast bulk of crude producers had been thoroughly convinced by costly experience that curtailment was their only chance of survival. The turn in the market which gave them more money for less oil clinched the argument, except for a few whose necessity for cash or greed for instant gain blinded them to all reason.

The availability of cheap crude continued to check the refined market which lagged behind the crude market throughout the year. For a time the reports of price fixing to be adopted by the Federal oil administration had an influence but soon became a gambling point just as the later removal of the half cent Federal tax was an upsetting element towards the close of the year.

The sidetracking of the government price fixing policy early in December and the announcement of the agreements on a marketing and pooling plan with the weekly expectation of its approval repeatedly postponed were also unsettling factors in a situation continually undermined by overproduction of both crude and gasoline.

Nineteen-thirty-three will be remembered by the oil industry and by the nation as the darkest hour before the dawn which is brightening 1934.

High Point in Stabilization

Approval of the Marketing and Purchasing Agreements is the high point in the stabilization program. What was being accomplished towards stabilization of the crude output was being menaced by instability in the refined market.

While the industry waited for action on the agreements the uncertainty was used to weaken further a market that groped its way from day to day in the absence of any definite light on the future.

East Texas overproduction, taking advantage of pending litigation, had again begun to increase and the whole situation was becoming so serious there was fear a crude price cut would be forced.

That was the situation when Administrator Ickes announced approval of the Marketing and Purchasing agreements signed by refiners producing 85 per cent of the national supply of gasoline with the expectation that 95 per cent would eventually become participants in the plan.

The news electrified the industry, giving new hope, assurance that the most difficult obstacle in the path to stabilization had at last been overcome. It is the best news producers and refiners have had in many a day.

The fact that the approval was modified in some particulars, that the administrator retains power to cancel the agreements at any time, and that he frankly says he is experimenting, does not alter the industry's confidence that Mr. Ickes is determined the oil business must be stabilized, that it cannot be allowed to fall back into the chaotic condition in which the Federal administration found it.

That is the fact that sticks out all through his statement, that and his steadfast determination to hold the balance fairly between all parties interested.

Where the time has been too short, in the midst of his multifarious other responsibilities, for him to determine this or that point on which he maintains an open mind he makes provision for demonstration, with the condition that it must be established to his satisfaction.

He is anxious that no injustice may be done but he insists upon proof that there is injustice. He is taking nothing for granted.

He gives full weight to the preponderant group in the industry which favors the plan submitted but he is going to study its operation closely and will modify or cancel it at the first evidence of any abuse.

Mr. Ickes has shown as oil administrator that his idea of administration goes far beyond perfunctory proclamation. He not only issues orders but he insists that they be executed. This is the most encouraging feature of his approval of these agreements for the stabilization of the oil industry.

There is not going to be any halfhearted, hit or miss, application of these rules if Mr. Ickes can prevent it. His announced resolution to modify or cancel will be carried out. He is experimenting but he knows where he is headed and is not to be swerved from his purpose which is the establishment of the oil business on a sound basis.

The agreements are now effective. The standard forms of contract are to be observed. The waiting attitude imposed upon the industry by the uncertainty of the past few months is at an end. These agreements and contracts mark the course to be pursued and it is now up to the industry to follow it.

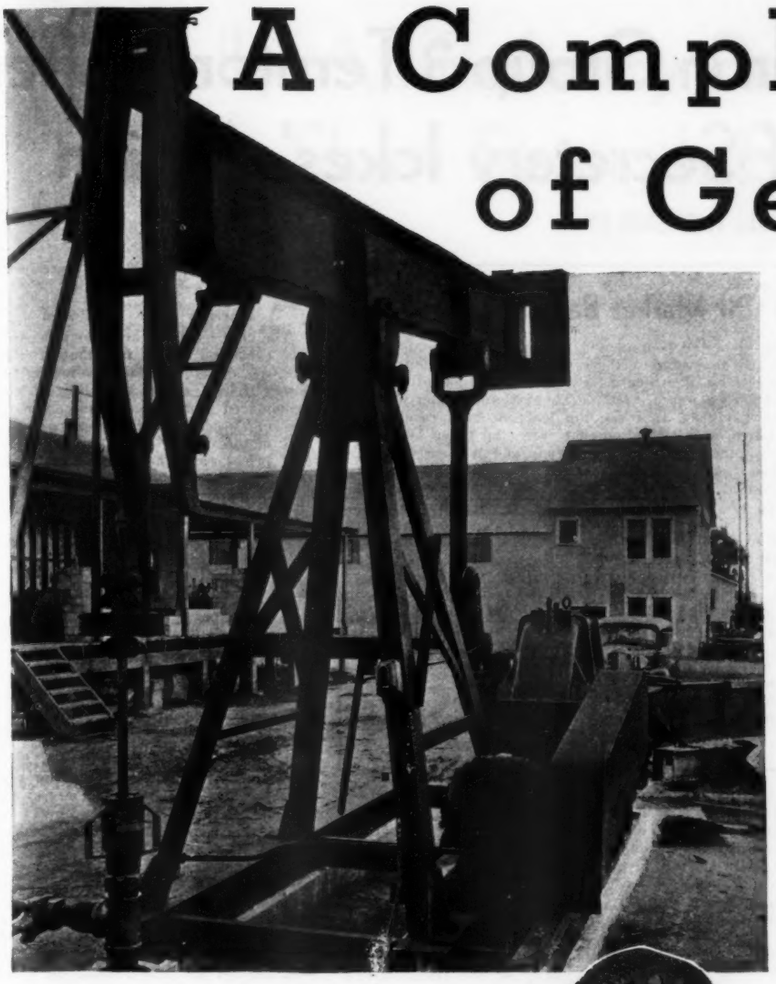
It may take a day or two to get this understood. It may be difficult to overcome the attitude of waiting for the next development which has become habitual. Naturally there is some criticism of the agreements and the forms of contract but this is not going to postpone the effectiveness of the order. Mr. Ickes indicates clearly that details of disagreement are to be ironed out without further delaying the program.

He asks that these agreements be given a fair trial and requests the industry to co-operate with him to this end. It is the only constructive thing the industry can do. It cannot risk being thrown back into its former condition and Mr. Ickes is positive it will not be allowed to. It can work this plan endorsed by 85 per cent or it will have some other plan forced upon it. There is nothing to be gained by balking.

The approval of these agreements gives the industry an opportunity for the first prosperous season in many years.

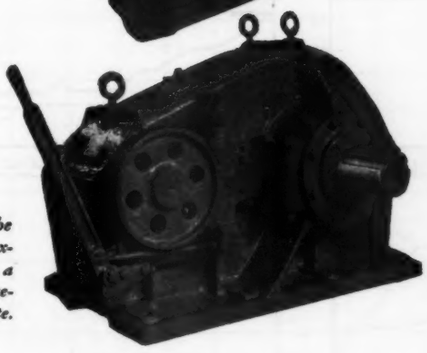
A Complete Line of Gear Units

to meet every pumping requirement



This "Oilwell" ODH-18 Individual Pumping Power is pumping a well in the East Texas field. The unit has a rating of 20-hp. at 20 strokes per minute.

Open view of the TC-20 Pumping Unit showing heavy cast case and substantial helical gearing. Its construction is typical of the other units illustrated. It is designed for use where twin-crank construction is desirable. Rating: 20 hp. at 20 strokes per minute.



Westinghouse OP-35 Pumping Unit. The slow-speed shaft of this unit is double-extended, making possible the pumping of a second well through a back-crank arrangement. Rating: 35 hp. at 20 strokes per minute.

IN the complete Westinghouse line you'll find a gear unit for every oil well pumping condition.

Illustrated here are three of the latest types of Westinghouse units—Types ODH-18, OP-35 and TC-20. Already, each has proved *in actual service* its ability to operate dependably and economically.

Quiet, efficient, helical gears are used throughout. All gears, pinions, and shafts are heat-treated to assure long life. Roller bearings give ample support to the shafts. The V-belt drive provides an easy method of changing pumping speeds.

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Cheerier Market Seen in Group 3 Territory After Announcement of Secretary Ickes' Action

By T. F. SMILEY

Speculation as to the probable effect of the pooling and marketing agreements approved last Saturday by Administrator Ickes created an unsettled, skittish feeling in the Oklahoma (Group 3) territory this week, with sellers loath to make quotations, but with a general conviction that a stronger market was in the making and that certain demoralizing conditions which for years have plagued oil refiners and marketers were about to be removed through aid of the Federal Government.

Attention of the trade was focused on the meeting called for Wednesday of this week in Washington, D. C., by Amos L. Beaty, vice chairman of the Planning and Co-ordinating Committee, when signers of the agreements were to take such final action as might be necessary to give full force to them.

Readiness to accept the action of Secretary Ickes as the harbinger of better days for the maker and seller of gasoline was tempered in some cases by two things, defiant evasion of law in the East Texas Field and the three-judge court case, involving the validity of the national petroleum code.

It is estimated that 1,500 cars of 375 and 400-endpoint gasoline have been bought from East Texas refineries since January 1 for coastwise or export shipment. It is declared this represents virtually one-half of the total refinery output of the district at the present time when three of the largest plants, those of the Danciger Oil & Refining Co., Taylor Refining Co. and East Texas Refining Co., are shut down.

Still Prices Went Down

It is pointed out that notwithstanding this heavy withdrawal from East Texas, prices of gasoline continued to drift downward. This has prompted some observers to ask: "If buying on such a scale did not have the effect of strengthening gasoline prices, how can any pooling agency hope to dispose of all the so-called 'distress' gasoline which that area, with its busy hot-oil operators, is capable of producing?" They assert, in brief, that the success of any program designed to stabilize gasoline prices depends in great measure upon the effectiveness of efforts to stop the production and processing of hot oil in the East Texas area.

Over against this group of semi-skeptics is a much larger group who declare their faith in the Government's ability to stop unlawful operations in East Texas and in its intention to do it just so fast as the admittedly cumbersome machinery of the courts permits.

With regard to the three-judge court decision in the case of the Amazon Petroleum Corp., attacking the constitutionality of the whole program of government control, it is contended that the Supreme Court of the United States has upheld in effect the validity of the Government's course and that there is small ground for fear that there will be any reversal of its attitude in the event that the Amazon case should be decided in favor of the plaintiff and an appeal were taken (as one assuredly would be) to the Supreme Court.

Cheerier Tone Manifested

The cheerier tone throughout the trade was evidenced by the fact that after the first period of indecision following Secretary Ickes' action a feeling of more pronounced confidence was observable and on Tuesday this increased confidence was manifested by a stiffening of gasoline prices throughout the whole range of grades, an eighth of a cent being added to all quotations, with indications that still higher prices were likely to prevail before the close of the week.

Natural gasoline, which has been exploring new low ground each week for a long time, attained another record in the last week, when the 26-70 material changed hands at 2⅝ cents, and reports were current that some of this grade, seeking swift outlet, was obtainable for 2½ cents. The naturals, which do not have a habit of following any too closely on the heels of refinery gasolines, nevertheless gave evidence of a better tone Tuesday. While 2⅝ cents remained the prevailing quotation for the 26-70 there were said to have been a few sales at 2½ cents, and close observers of this section of the petroleum products expressed the belief that the turn had been accomplished and that a better market would be experienced from now on.

The neutrals went up a half cent throughout the list on Monday of this week, largely in sympathy with the advance in these products in the Pennsylvania area, where sharp increases have been chalked up. The demand for bright stocks and cylinder stocks was brisk.

Distillates were soft and prices recorded a recession of an eighth of a cent throughout the list. Kerosene, naphthas and wax were unchanged.

Refined Oil Market Barometer

Reaction to the approval of the pooling and marketing agreements by Secretary Ickes was generally favorable, a short period of irresolution being followed by clear indications of strength. Prices of gasoline, after a day of hesitancy, manifested pronounced strength Tuesday and higher quotations were general, with likelihood that the top had not been reached. Renewal of confidence is based on a conviction that each step taken by the Government in Washington is the result of careful study and of assuredness that it can accomplish what it sets out to do.

Mid-Continent—Pronounced strength in refinery gasolines, with better tone in naturals. Neutrals, bright stocks and cylinder stocks strong. Distillates soft.

East Coast—With the exception of gasoline, virtually whole list strong. Lubricants and neutrals for export up.

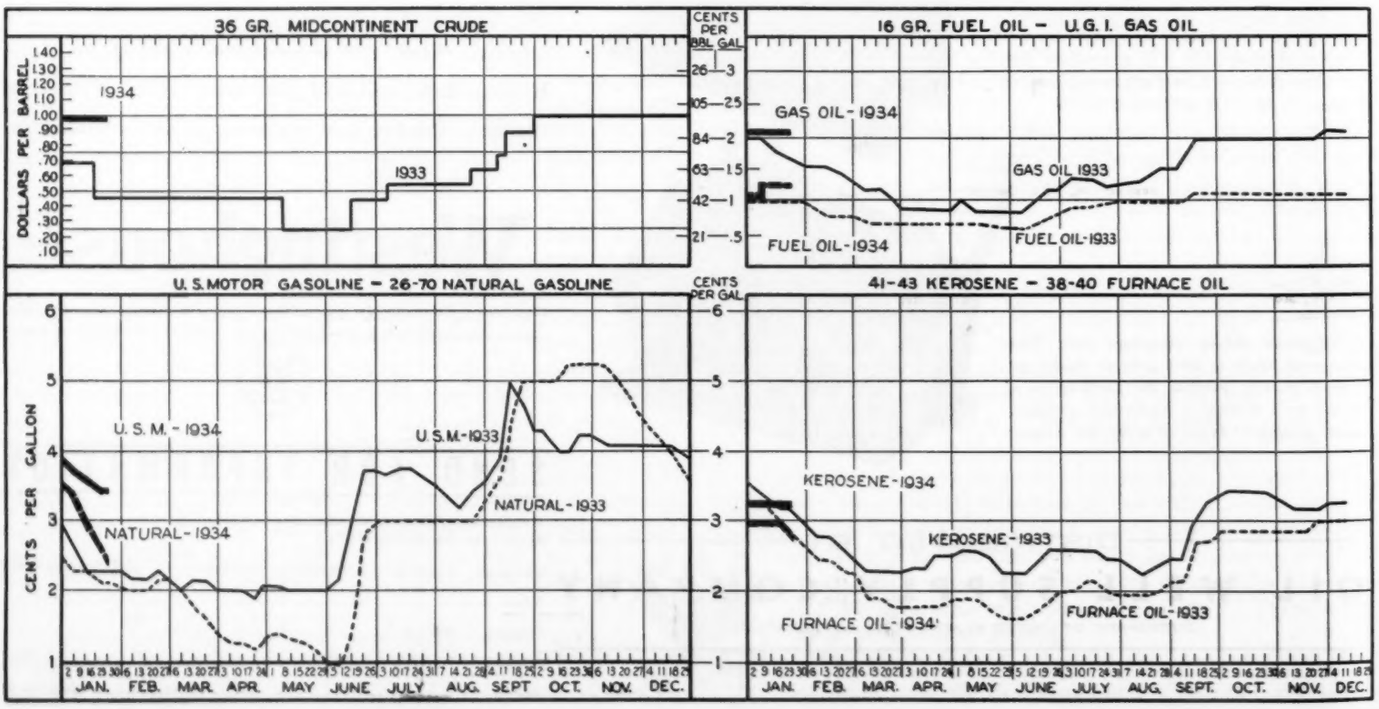
Gulf Coast—Gasolines show firmer undertone, but unsettled. Neutrals steady, with fair business. Kerosene scarce and fuels tight.

Pennsylvania—Little change in gasoline. Kerosene, bright and refined stocks and neutrals strong. Fuels, wax, naphthas and furnace oils slightly off.

California—Refinery and natural gasolines strong. High-octane gasoline for export soft. Kerosene unchanged.

Chicago—Gasoline strong, quotations higher. Naphthas weak. Lubricants and wax strong. Gas and fuel oils fairly firm. Kerosene unchanged, with demand dull.

Representative Mid-Continent Quotations on Crude Oil and Refined Products Basis Oklahoma (Group 3)



Practically All Refinery Products in East Coast Market Show Strength Except Motor Fuel

By C. O. WILLSON
New York Bureau, The Oil and Gas Journal

NEW YORK, Jan. 22.—Except for motor fuels, the East Coast refinery markets presented a generally strong appearance over the past week. The only price advance of the week applied to Pennsylvania Grade lubricants, but sellers were maintaining firm prices in the case of kerosene, distillate, gas oil, fuel oil and the by-products.

The cylinder stocks made from Pennsylvania Grade crude oil were advanced 1 cent a gallon following a 1-cent advance of the previous week. Similar advances have materialized in Pennsylvania Grade neutral oils for export movement. The low on No. 8 color bright stocks (f.a.s. in barrels) for export movement is 33 cents with prices quoted by important factors as high as 38 cents per gallon. The bulk prices are from 6 to 7 cents lower than the prices in barrels. The domestic prices which generally are 1 cent per gallon higher than the export quotations have taken the same advances since the first of the year.

In the steam refined cylinder stocks, the 600 S.R. unfiltered grade in barrels for export movement is now bringing a low of 23½ cents and 26½ cents for the 650 grade. The low on 600 flash is 27½ cents. The open market quotations of one of the largest producers of Pennsylvania Grade stocks are 4 cents a gallon above these lows.

Pennsylvania Strength Reflected

The strength in Pennsylvania stocks and neutral oils which has been reflected in the quotations of the finished motor and industrial oils has been one of the most encouraging developments of the winter months. This strength is said to be based on an increased demand for these oils coming from several sources in both domestic and export markets.

In the domestic end it is known that at least three of the major oil companies are using larger quantities of the Pennsylvania Grade products. In two of these cases, the companies do not advertise their products as Pennsylvania Grade, but they are using more bright stock and neutral oils made from the Pennsylvania Grade crude oil. The companies which over a period of several years have perfected a world-wide distribution of their Pennsylvania Grade lubricants are also enjoying a satisfactory business. This situation, which has been in the making for several months, has placed the Pennsylvania products on a much higher price level than prevailed a year ago when the No. 8 color bright stock was selling for 23 cents per gallon (f.a.s. New York) in barrels.

While the steam refined and bright stock situation in the case of Mid-Continent oils is not as strong as the Pennsylvania oils, these products have also shown improvement. So far as this territory is concerned a normal price relationship to the Pennsylvania products is being maintained in quotations for the Mid-Continent products for domestic and export movement. The Gulf Coast neutral oils, which are a direct factor in eastern lubricating oil markets, are also stronger than they were at the close of 1933.

Kerosene Firm

Predictions are made that kerosene prices will be advanced in the near future. The demand has improved and, although stocks are not depleted at eastern refineries, there is a disposition on the part of sellers to conserve their supplies with the belief that they will be needed later in the year. The kerosene supplies of this territory come in part from the Gulf Coast through regular tanker movement to bulk terminals. The supplies of kerosene at the Gulf Coast are more limited than they were a year ago and buyers in recent months for domestic movement have been compelled to compete with a more active export market.

Largely the same situation applies to furnace oil distillates. Stocks of the various grades of distillates are greater than they were a year ago at eastern refineries, but there is a fear that due to a curtailment of refinery crude runs under the government program, current output will be reduced and sellers are not trying to increase their sales with the various forms of price concessions. As in the case of kerosene, buyers are finding it more and more difficult to pick up material at the Gulf Coast which can be brought to eastern terminals at prices low enough to be attractive.

In the case of kerosene particularly, it is contended that tank wagon prices should be advanced from one-half to 1 cent per gallon and this increase reflected in the tank car quotations. The present tank wagon price on kerosene in New York is 8.5 cents with quotations ranging up to 9.5 cents to nearby inland points. With 5¼ to 5½-cent tank car price at the harbor points it is apparent that higher tank wagon prices are necessary if the tank car schedules are to be advanced.

Fuel Oil and Gas Oil

The trade reports more activity since the first of the year in the demand for industrial fuels. This demand covers the low gravity residual oils and the dark overhead gas oils. Business in the latter at tank car prices of 4 to 4½ cents has been active. After the first of the year it was reported that there had been some slackening in the marine demand for Diesel and bunker fuels. This applied largely to the contract movement. Some of these new contracts take higher prices which are more in line with the prevailing spot market which is $1.20 per barrel.

Motor Fuels

In regard to the motor fuel market there is little that is new to add to the explanation of the price weakness explained in these columns last week. Domestic tank car sellers in most cases are maintaining the prices in effect last week but export quotations at the Gulf Coast are one-eighth cent lower.

The trade attitude is that there will be no important developments in the eastern gasoline market either up or down until it becomes known definitely just how the latest plan of the Government explained elsewhere in this issue will work out. In some circles the view is expressed that the gasoline market is in a better situation basically than has been indicated by the recent declines in price levels at refineries over a large part of the United States. They feel that the elimination of a few weak spots to be brought about by a stricter control of crude oil production plus some buying of distress gasoline in the hands of a few refiners could quickly reverse the recent trend in quotations and re-establish tank car quotations in line with the crude oil market.

On the other hand, if something along this line does not develop in the immediate future, predictions are heard that crude oil prices will be reduced with lower tank car prices on gasoline in prospect. Prices in New York harbor and other nearby terminals range from 5¼ cents for the lowest octane fuel to 6 cents for material above 65 octane. The market is not strong at these levels and it is reported that gasoline has been brought from the Gulf Coast over the past week in tanker lots and offered under 5¼ cents with the middle grade under 5½ cents. Tank wagon and service station prices also are unsettled.

The uncertainty as to the final action at Washington last week also delayed the closing of contracts with dealers and jobbers. The terms of these contracts and the methods used in arriving at base prices have varied, but in general the jobbers have been allowed 6 cents under the service station price at the point of delivery.

American Petroleum Institute Weekly Refinery Statistics

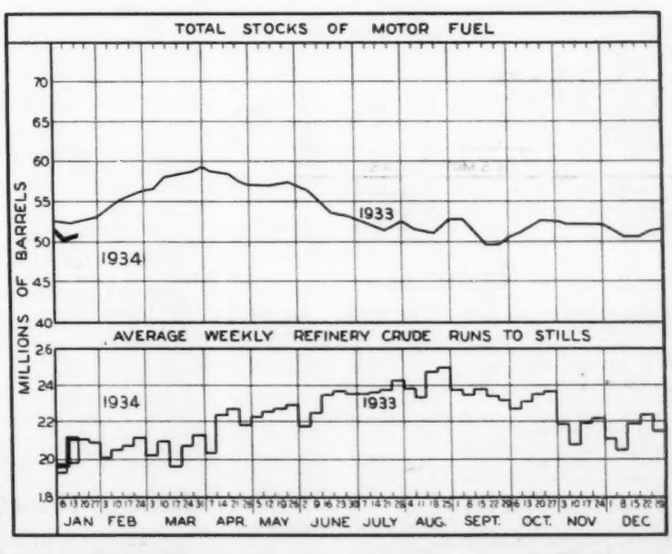
Figures below reported for week by American Petroleum Institute. (1) Per cent refinery capacity represented. (2) Daily average crude runs to stills. (3) Total motor fuel stocks. (4) Gas oil and fuel oil stocks. All figures in 42-gallon barrels.

Week Ending January 20, 1934, Compared to Week Ago

		—Week ending January 13, 1934—			
		(1)	(2)	(3)	(4)
East Coast		100.0	383,000	13,815,000	5,704,000
Appalachian ...		92.6	79,000	1,934,000	924,000
Ind., Ill., Ky. ..		97.3	270,000	7,244,000	4,276,000
Okla., Kans., Mo.		82.1	222,000	5,507,000	3,466,000
Inland Texas ..		60.2	87,000	1,219,000	1,640,000
Texas Gulf	A.P.I. figures unavoidably delayed.	98.1	477,000	5,356,000	5,556,000
La. Gulf		100.0	88,000	1,512,000	1,897,000
N. La. and Ark.		92.6	48,000	198,000	504,000
Rocky Mtn.		78.8	37,000	944,000	684,000
California		96.9	425,000	13,304,000	91,684,000
Total U. S. ...		92.4	2,116,000	51,033,000	116,335,000

Week Ending January 20, 1934, Compared to Year Ago

		—Week ending January 21, 1933—			
		(1)	(2)	(3)	(4)
East Coast		99.1	442,000	13,205,000	7,676,000
Appalachian ...		95.0	83,000	1,785,000	846,000
Ind., Ill., Ky. ..		97.5	307,000	7,067,000	3,373,000
Okla., Kans., Mo.		84.9	201,000	4,787,000	2,882,000
Inland Texas ..		56.4	99,000	1,500,000	2,191,000
Texas Gulf	A.P.I. figures unavoidably delayed.	97.7	392,000	6,103,000	6,443,000
La. Gulf		97.3	81,000	1,424,000	2,363,000
N. La. and Ark.		88.5	44,000	298,000	492,000
Rocky Mtn.		90.8	33,000	1,190,000	484,000
California		94.6	424,000	15,188,000	99,270,000
Total U. S. ...		91.6	2,106,000	52,547,000	126,025,000



Data based on weekly reports of American Petroleum Institute. Figures for week just ended not shown in graph but are included in accompanying table.

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement except as otherwise noted

The following quotations are exclusive of the Federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasolines

OKLAHOMA (Group 3)—	Jan. 23		Jan. 16	
U. S. Motor grades:				
Below 60 octane	.03⅝	.03⅞	.03½	.03¾
60-64.9 octane	.04⅜	.04⅝	.04¼	.04½
65-70 octane	.04¾	.05	.04⅝	.05
60-62 400 grades:				
Below 60 octane	.03⅞	.04	.03¾	.03⅞
60-64.9 octane	.04¾	.05	.04½	.05
65-70 octane	.05	.05¼	.05	.05¼
64-66 375	.04¼	.04⅜	.04⅛	.04¼
68-70 360	.04¾	.05	.04¾	.05
NORTH TEXAS—				
U. S. Motor grades:				
Below 60 octane	.03⅝	.03¾	.03½	.03¾
60-64.9 octane	.04⅜	.04⅝	.04¼	.04½
65-70 octane	.04¾	.05	.04⅝	.05
60-62 400	.03⅞	.04	.03¾	.03⅞
64-66 375	.04⅛	.04¼	.04⅛	.04¼
68-70 360	.04⅝	.05	.04¾	.05
NORTH LOUISIANA (Ark., No. La. & Miss. del.)—				
U. S. Motor grades:				
Below 60 octane	.04⅛	.04⅜	.04¼	
60-64.9 octane	.05	.05¼	.05¼	
65-70 octane	.05½		.05¾	
60-62 400	.04¼		.04⅜	
ARKANSAS (Ark., No. La. & Miss. del.)—				
U. S. Motor grades:				
Below 60 octane	.04⅛	.04⅝	.04¼	
60-64.9 octane	.05	.05¼	.05¼	
65-70 octane	.05½		.05⅝	
CHICAGO (based on Oklahoma Group 3)—				
U. S. Motor grades:				
Below 60 octane	.03¾	.04	.03⅝	.03⅞
60-64.9 octane	.04⅝	.04⅞	.04⅜	.04⅝
65-70 octane	.05	.05⅛	.04¾	.05
60-62 400	.03⅞	.04	.03¾	.04
64-66 375	.04⅝	.05	.04⅝	.04⅞
68-70 360	.05	.05¼	.04⅞	.05⅛
Aviation fighting grade	.05¼	.05¾	.05⅝	.05¾
PENNSYLVANIA (inland refineries)—				
58-60 U. S. Motor:				
Below 60 octane	.05	.05¼	.05⅛	.05¼
60-64.9 octane	.06⅜	.06½	.06⅜	.06½
65-70 octane	.06¾	.07	.06¾	.07
64-66 375	.06	.06⅛	.06	.06⅛
68-70 350	.06⅛	.06½	.06⅛	.06¼
CALIFORNIA (domestic movement)—				
54-58 U. S. Motor	.08	.09	.07½	.09
58-60 400	.09	.10	.08¾	.09¾
EAST COAST—				
U. S. Motor, below 60 octane:				
New York	.05½		.05½	
Baltimore	.05½		.05½	
U. S. Motor, 60-64 octane:				
New York (Bayonne)	.05¾		.05¾	
Philadelphia	.05¾	.06	.05¾	.06
Boston	.06	.0620	.06	.06¼
Baltimore	.05¾		.05¾	
Charleston, S. C.	.05¾		.05¾	
U. S. Motor, 65 and above:				
New York (Bayonne)	.06		.06	
Philadelphia	.06	.06¼	.06	.06¼
Boston	.06¼	.0645	.06¼	.06½
Baltimore	.06		.06	
Charleston, S. C.	.06		.06	
GULF COAST (domestic)—				
U. S. Motor:				
Below 60 octane	.04½			
60-64.9 octane	.04⅞	.05⅛	.04¼	.04½
65 octane and higher	.05¼	.05½	.05¼	.05½

Naphthas

OKLAHOMA (Group 3)—	Jan. 23		Jan. 16	
50-52 450 (blending)	.04⅛	.04¼	.04⅛	.04¼
PENNSYLVANIA (inland refineries)—				
50-54 430-450 (blending)	.05	.05⅛	.05⅛	
ARKANSAS (Ark., No. La. & Miss. del.)—				
48-50 (blending)	.04½	.04¾	.04½	.04¾
CHICAGO (based on Oklahoma Group 3)—				
50-52 450 (blending)	.03¾	.04	.03¾	.04¼
Cleaners' naphtha, 56-58 gr., 200 i.b.p.-330 e.p.	.06½	.06¾	.06½	.07
Lacquer diluent, 180 i.b.p.-250 e.p.	.07½	.07¾	.07½	.08
Lacquer diluent, 140 i.b.p.-200 e.p.	.08½	.08¾	.08½	.09
Rubber solvent, 68-70 gr., 100 i.b.p.-300 e.p.	.06½	.06¾	.06½	.07
Stoddard solvent, 300 i.b.p.-410 e.p., over 83° flash	.06	.06¼	.06	.06½
Pet. thinner, 290-300 i.b.p.-415 e.p., over 83° flash	.06	.06½	.06	.06½
V.M.&P. naphtha, 56-58 gr., 190-200 i.b.p.-330 e.p.	.06½	.06¾	.06½	.07
Petroleum spirits	.05½	.05¾	.05½	.06

Natural Gasolines

OKLAHOMA (Group 3)—	Jan. 23		Jan. 16	
Grade 26-70	.02⅜	.02½	.02⅝	.02¾
Grade 18-55	.03		.03¼	.03⅜
Low vapor pressure grades:				
15 lb. v.p. (max.)	.03¼		.03⅝	.03¾
11 lb. v.p. (max.)	.03¾	.04	.04¼	.04½
NORTH TEXAS—				
Grade 26-70	.02⅜	.02½	.02⅝	.02¾
Grade 18-55	.03		.03¼	.03⅜
Low vapor pressure grades:				
15 lb. v.p. (max.)	.03¼		.03⅝	.03¼
11 lb. v.p. (max.)	.03¾	.04	.04¼	.04½
NORTH LOUISIANA—				
Grade 26-70	.02⅜		.03	
CALIFORNIA—				
75-85 375	.06	.07	.05½	.06½

Kerosenes

(All kerosenes water white)

OKLAHOMA (Group 3)—	Jan. 23		Jan. 16	
41-43	.03¼	.03½	.03¼	.03½
42-44	.03½	.03⅝	.03½	.03⅝
NORTH TEXAS—				
40-41	.03⅛	.03¼	.03⅛	.03¼
41-43	.03¼	.03⅜	.03¼	.03⅜
NORTH LOUISIANA (Ark., No. La. & Miss. del.)—				
41-43	.03¾		.03¾	
42-44	.04		.04	
ARKANSAS (Ark., No. La. & Miss. del.)—				
41-43	.03¾		.03¾	
PENNSYLVANIA (inland refineries)—				
45	.04¼	.04½	.04¼	.04½
46	.04½	.05	.04½	.05
47	.04¾	.05	.04¾	.05
CHICAGO (based on Oklahoma Group 3)—				
41-43	.03¼	.03½	.03¼	.03½
42-44	.03⅜	.03½	.03⅜	.03½
CALIFORNIA (Pacific Coast consumption)—				
38-40 high burning test	.04¼	.04¾	.04¼	.04¾
NEW YORK (Bayonne, N. J.)—				
41-43	.05¼	.05½	.05¼	.05½
GULF COAST (domestic)—				
41-43	.04½	.04⅝	.04½	.04⅝

Petroleum Coke

Prices per ton f.o.b. refineries in Chicago area. (Refineries will absorb freight to 80 cents a ton)

	Jan. 23	Jan. 16
Breeze (screenings)	5.50	5.50
Pile run	5.50	5.50
Direct from still	6.50	6.50
Lump and egg	8.00	8.00

Furnace Oils and Tractor Fuels

(Zero cold test under 190° flash and good odor)

OKLAHOMA (Group 3)—	Jan. 23		Jan. 16	
32-36 straw	.02⅞	.03	.03	.03⅛
36-38 straw	.02⅝	.02⅞	.02⅞	.03
38-40 straw	.02⅞	.03	.03	.03⅛
39-41 prime	.03	.03⅛	.03⅛	.03¼
NORTH TEXAS—				
38-40 straw	.02¾	.03	.02⅞	.03
NORTH LOUISIANA (Ark., No. La. & Miss. del.)—				
36-40 furnace oil	.03		.03	
ARKANSAS (Ark., No. La. & Miss. del.)—				
32-36 furnace oil	.03		.03⅛	
CHICAGO (based on Oklahoma Group 3)—				
32-36 straw	.03⅛	.03¼	.03⅛	.03¼
38-40 straw	.03⅛	.03¼	.03⅛	.03¼
38-40 prime white	.03¼	.03⅜	.03¼	.03⅜
PENNSYLVANIA (inland refineries)—				
40-41 prime white	.03⅞	.04⅛	.04	.04⅛
NEW YORK (Bayonne, N. J.)—				
36-40 (No. 1 grade)	.05¼	.05½	.05¼	.05½
32-36 (No. 2 grade)	.04½		.04½	
21 industrial (No. 4 grade)	.04		.04	

Gas Oil, Diesel Oil and Fuel Oil

(Gas oil per gal.; Diesel and fuel oils per bbl.)

OKLAHOMA (Group 3)—	Jan. 23		Jan. 16	
32-36 gas oil cracking stock	.01⅞	.02⅛	.01⅞	.02⅛
U.G.I. gas oil	.02⅛		.02⅛	
32-36, zero to 15 gas oil	.02⅞	.03	.02⅞	.03
28-30, No. 3 burner oil	1.05	1.10	1.05	1.10
28-30, zero to 10 fuel oil	.95	1.00	.95	1.00
26-30, zero to 10 fuel oil	.85	.95	.85	.95
24-26 fuel oil	.65	.70	.65	.70
20-22 fuel oil	.55	.60	.55	.60
Below 16 fuel oil	.55	.60	.55	.60
NORTH TEXAS—				
32-36 gas oil, industrial	.02		.02	
22-26 fuel oil	.57½	.62½	.57½	.62½
Below 20 fuel oil	.47½	.50	.47½	.50
NORTH LOUISIANA (Ark., No. La. & Miss. del.)—				
32-36 gas oil, zero	.03		.03	
14-16 fuel oil	.65	.70	.65	.70
ARKANSAS (Ark., No. La. & Miss. del.)—				
30-32 gas oil, zero	.02¾		.02¾	
32-36 gas oil	.03		.03	
14-16 fuel oil	.65	.70	.65	.70
CHICAGO (based on Oklahoma Group 3)—				
32-36 gas oil, industrial	.01⅞	.02	.01⅞	.02
28-30 zero to 10, fuel oil	1.00	1.07½	.97½	1.07½
26-28 zero to 10, fuel oil	.87½	.92½	.85	.90
22-26 zero to 10, fuel oil	.77½	.82½	.72½	.77½
18-22 zero to 10, fuel oil	.60	.65	.60	.65
Below 18 fuel oil	.40	.45	.40	.45

Note: Fuel oils of more than 40 cold test generally 5 to 15 cents per barrel less in all these areas.

PENNSYLVANIA (inland refineries)—				
36-40	.03¾	.04	.03⅞	.04⅛
CALIFORNIA—				
30-34 gas oil per bbl.	1.05	1.15	1.05	1.20
27 plus Diesel	1.05	1.15	1.05	1.15
15-19 bunker (at tidewater)	.60	.70	.60	.70
15-19 (cargo lots)	.55	.65	.55	.65
15-19 (tank cars)	.45	.65	.45	.65
GULF COAST—				
28-30 gas oil	.03¾		.03¾	
28-30 Diesel (bunkers)	1.80		1.80	
Bunker C (bulk cargoes)	.92½	.95	.92½	.95
NEW YORK (Bayonne, N. J.)—				
28 plus, gas oil	.04¼	.04½	.04	.04¼
28-30 Diesel (lighterage 6½ cents per bbl.)	1.95		1.95	
28-30 Diesel (tank cars)	.04½		.04½	
*Bunker C (to ocean-going ships in N. Y. harbor	1.20		1.20	

*Lighterage charge 5 cents per barrel additional.

Neutral Oils

(Vis. at 100° F. except Pennsylvania, and color N.P.A.)

OKLAHOMA (Group 3)—	Jan. 23		Jan. 16	
Zero to 10 Cold Test:				
150-3	.07¾	.08	.07¼	.07½
180-3	.09	.09¼	.08½	.08¾
180-4	.08¾	.09	.08¼	.08½
200-3	.09½	.09¾	.09	.09¼
200-4	.09¼	.09½	.08¾	.09
240-3	.11½	.11¾	.11	.11¼
240-4	.11¼	.11½	.10¾	.11
280-3	.12½	.12¾	.12	.12¼
280-4	.12	.12¼	.11½	.11¾
300-3½	.13¼	.13½	.12¾	.13
350-3½	.14¼	.14½	.13¾	.14
400-4	.15¼	.15½	.14¾	.15
500-4½	.16¼	.16½	.15¾	.16
100-2 paraffin oil	.05½	.05¾	.05	.05¼
15-30 Cold Test:				
200-3	.08½	.08¾	.08	.08¼
200-4	.08¼	.08½	.07¾	.08
240-3	.10½	.10¾	.10	.10¼
240-4	.10¼	.10½	.09¾	.10
280-3	.11½	.11¾	.11	.11¼
280-4	.11¼	.11½	.10¾	.11
GULF COAST—				
Pale Oils:				
200-3	.07½		.07½	
300-3	.08	.08¼	.08	.08¼
500-3½	.09	.09¼	.09	.09¼
750-3½	.09½	.09¾	.09½	.09¾
1,200-3½	.10	.10¼	.10	.10¼
2,000-4	.10½	.10¾	.10½	.10¾
Red Oils:				
200-5-6	.06½		.06½	
300-5-6	.07	.07½	.07	.07¼
500-5-6	.08	.08¼	.08	.08¼
750	.08½	.08¾	.08½	.08¾
1,200-5-6	.09	.09¼	.09	.09¼
2,000-6 plus	.09½	.09¾	.09½	.09¾
CALIFORNIA—				
Pale Oils:				
100-2½-3	.23	.25	.23	.25
200-2½-3	.23	.25	.23	.25
300-3-3½	.23	.25	.23	.25
350-3-4	.23	.25	.23	.25
400-3-4	.23	.25	.23	.25

450-3-4	.23	.25	.23	.25
550-3-4	.23	.25	.23	.25
600-3-4	.23	.25	.23	.25
Red Oils:				
200-4-5	.23	.25	.23	.25
300-5-6	.23	.25	.23	.25
350-5-6	.23	.25	.23	.25
400-5-6	.23	.25	.23	.25
450-5-6	.23	.25	.23	.25
500-5-6	.23	.25	.23	.25
600-5-6½	.23	.25	.23	.25
700-6½ plus	.23	.25	.23	.25
750-6½ plus	.23	.25	.23	.25
900-6½ plus	.23	.25	.23	.25
PENNSYLVANIA—				
150 vis. at 70° F., 3 color; 400-405 flash:				
Zero pour test	.23½	.24	.23½	.24
10 pour test	.22½	.23	.22½	.23
15 pour test	.22	.22½	.22	.22½
25 pour test	.21	.21½	.21	.21½
180 vis. at 70° F., 3 color:				
25 pour test	.25	.25½	.25	.25½
200 vis. at 70° F., 3 color:				
Zero pour test	.30	.30½	.30	.30½
10 pour test	.28½	.29	.28½	.29
15 pour test	.28	.28½	.28	.28½
25 pour test	.27½	.28	.27½	.28

Bright and Steam Refined Stocks

OKLAHOMA (Group 3)—	Jan. 23		Jan. 16	
630 light green	.11	.14	.11	.14
600 light green S.R.	.07	.09	.07	.09
600 dark green S.R.	.05	.07	.05	.07
Bright Stocks:				
190-200 D	.24	.25	.24	.25
150-160 D, 0-10	.22¼	.22½	.22¼	.22½
150-160 D, 10-25	.21¾		.21¾	
150-160 D, 25-40	.21¼		.21¼	
150-160 E	.21¼		.21¼	
PENNSYLVANIA—				
600 S.R.	.18½	.19	.18½	.19
650 S.R.	.20½	.21	.20½	.21
600 Pennsylvania flash	.21½	.22	.21½	.22
630 flash	.26	.26½	.26	.26½
600 Warren E filtered	.21½	.22	.21½	.22
Pennsylvania Grade bright stock:				
No. 8 color, 145-50 at 210; 540-550 flash:				
10 pour test	.29	.29½	.29	.29½
15 pour test	.28½	.29	.28½	.29
20 pour test	.28	.28½	.28	.28½
25 pour test	.27½	.28	.27½	.28

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—	Jan. 23		Jan. 16	
124-126 white crude scale	.03¾	.03⅞	.03¾	.03⅞
PENNSYLVANIA—				
122-124	.04	.0405	.04	.0405
124-126	.0405	.0410	.0405	.0410
NEW YORK HARBOR—				
Wax (a.m.p.) in bags:				
120-122	.0430		.0430	
123-125	.0445		.0445	
125-127	.0455		.0455	
130-132	.0495		.0495	
133-135	.0555		.0555	
135-137	.0580		.0580	
124-126 crude scale	.03⅞	.04	.03⅞	.04
Petrolatum in barrels in carload lots:				
Dark green	.01⅞	.02	.01⅞	.02
Amber	.02⅞	.03	.02⅞	.03
Extra amber	.03½	.03¼	.03½	.03¼
Lily white	.06¾	.06⅞	.06¾	.06⅞
Snow white	.07¾	.07⅞	.07¾	.07⅞
Cream	.05⅝	.05¾	.05⅝	.05¾
CHICAGO (f.o.b. switching district)*—				
122-124 wax	.0465	.0475	.0465	.0475
125-127 wax	.0490	.0500	.0490	.0500
127-129 wax	.0505	.0515	.0505	.0515
130-132 wax	.0565	.0575	.0565	.0575
132-134 wax	.0590	.0600	.0590	.0600

*Cents per pound on carlot orders in burlap bags of 225 lbs. approx. Add 3° F., a.m.p.

Export Prices

GASOLINE

GULF COAST—	Jan. 23		Jan. 16	
U. S. Motor	.04⅞	.05	.05	
60-62 400	.05⅛	.05¼	.05¼	
61-63 390	.05¼	.05⅜	.05⅜	
64-66 375	.05⅜	.05½	.05½	
LOS ANGELES, CALIF.—				
U. S. Motor grades:				
53-55 octane	.04¼	.04½	.04¼	.04½
55-65 octane	.04½	.04¾	.04½	.04¾
65-67 octane	.04¾	.05	.04¾	.05
67-69 octane	.05	.05¼	.05	.05¾
Above 69 octane	.05¼	.05¾	.06	.06¾
58-60 400 endpoint	.05	.05¾	.04¾	.05¾

KEROSENE

GULF COAST—				
41-43 prime white	.04¼	.04⅜	.04¼	
41-43 water white	.04⅜	.04½	.04⅜	
44 water white	.04⅝		.04½	.04⅝
LOS ANGELES, CALIF.—				
41-43 water white	.04	.04½	.03½	.04

LUBRICANTS

NEW YORK (f.a.s. in bbls.)—				
Cylinder Stocks:				
600 Warren E	.27	.28	.26	.27
600 S.R. unfiltered	.23½	.24½	.22½	.23½
650 S.R. unfiltered	.26½	.27½	.25½	.26½
600 flash S.R.	.27½	.28½	.26½	.27½
630 flash S.R.	.31½	.32½	.30½	.31½
Bright stock, 8 color	.33	.34	.32	.33
Bright stock, 6½ plus, dil.	.32	.33	.31	.32

NEUTRAL OILS

300-3 color	.31	.32	.30	.31
150-3 color	.27	.28	.26	.27

PARAFFIN WAX (Fully Refined)

NEW YORK (prices per pound)—				
120-122 a.m.p.	.04¾	.04⅝	.04¼	.04⅜
123-125 a.m.p.	.04⅝	.04¾	.04⅜	.04½
125-127 a.m.p.	.04½	.04⅝	.04⅜	.04⅝
130-132 a.m.p.	.05	.05⅛	.05	.05⅛
133-135 a.m.p.	.05½	.05⅝	.05½	.05⅝
135-137 a.m.p.	.05¾	.05⅞	.05¾	.05⅞

Crude Oil Gravity Table

Degrees gravity—	1 Oklahoma and Kansas	2 North Texas, Central Texas and East Central Texas	3 North Louisiana and Arkansas	4 Gray County, Texas	5 Carson, Hutchinson and Moore Counties, Texas	6 Conroe, Texas	7 Salt Creek, Wyo.	8 Gulf Coast, Texas and Louisiana	9 Gulf Coast, Texas and Louisiana	10 Caddo, Louisiana	11 Sabine-De Soto, Louisiana	12 Homer, Louisiana	13 Sarepta-Carterville, Louisiana	14 El Dorado, Arkansas	15 Haynesville, Louisiana	16 Miller County, Arkansas	17 Cotton Valley, Louisiana
Below 20	....	....	....	....	....	....	....	$.82	$.82	....	....	....	....	....	....	....	....
20-20.9	....	....	....	....	....	....	....	.84	.84	....	....	....	....	....	....	....	....
21-21.9	....	....	....	....	....	....	....	.86	.86	....	....	....	....	....	....	....	....
22-22.9	....	....	....	....	....	....	....	.88	.88	....	....	....	....	....	....	....	....
23-23.9	....	....	....	....	....	....	....	.90	.90	....	....	....	....	....	....	....	....
24-24.9	....	....	....	....	....	....	....	.92	.92	....	....	....	....	....	....	....	....
Below 25	*$.76	....	....	....	....	....	....	....	....	$.62	$.69	$.71	$.75	$.75	$.65	$.62	$.70
25-25.9	*.78	....	....	....	....	....	....	.94	.94	.65	.71	.73	.77	.77	.67	.64	.72
26-26.9	*.80	....	....	....	....	....	....	.96	.96	.67	.73	.75	.79	.79	.69	.66	.74
27-27.9	*.82	....	....	....	....	....	....	.98	.98	.69	.75	.77	.81	.81	.71	.68	.76
28-28.9	*.84	....	....	....	....	....	....	1.00	1.00	.71	.77	.79	.83	.83	.73	.70	.78
Below 29	.84	$.79	0.79	....	....	....	$.84	....	....	....	....	....	....	....	....	....	....
29-29.9	.86	.81	.81	....	....	....	.86	1.02	1.02	.73	.79	.81	.85	.85	.75	.72	.80
30-30.9	.88	.83	.83	....	....	....	.88	1.04	1.04	.75	.81	.83	.87	.87	.77	.74	.82
31-31.9	.90	.85	.85	....	....	....	.90	1.06	1.05	.77	.83	.85	.89	.89	.79	.76	.84
32-32.9	.92	.87	.87	....	....	....	.92	1.08	1.06	.79	.85	.87	.91	.91	.81	.78	.86
33-33.9	.94	.89	.89	....	....	....	.94	1.10	1.07	.81	.87	.89	.93	.93	.83	.80	.88
34-34.9	.96	.91	.91	....	....	....	.96	1.12	1.08	.83	.89	.91	.95	.95	.85	.82	.90
Below 35	....	....	....	$.79	$.69	....	....	....	....	....	....	....	....	....	....	....	....
35-35.9	.98	.93	.93	.81	.71	$1.09	.98	1.12	1.09	.85	.91	.93	.97	.97	.87	.84	.92
36-36.9	1.00	.95	.95	.83	.73	1.11	1.00	1.12	1.10	.87	.93	.95	.99	.99	.89	.86	.94
37-37.9	1.02	.97	.97	.85	.75	1.13	1.02	1.12	1.11	.89	.95	.97	1.01	1.01	.91	.88	.96
38-38.9	1.04	.99	.99	.87	.77	1.15	1.04	1.12	1.12	.91	.97	.99	1.03	1.03	.93	.90	.98
39-39.9	1.06	1.01	1.01	.89	.79	1.17	1.06	1.12	1.13	.93	.99	1.01	1.05	1.05	.95	.92	1.00
40 and over	1.08	1.03	1.03	.91	.81	1.19	1.08	1.12	1.14	.95	1.01	1.03	1.07	1.07	.97	.94	1.02

*The following companies purchasing crude oil in Kansas or Oklahoma, or both, begin their price schedules: Below 25 degrees, 76 cents; 25-25.9 degrees, 78 cents, with 2 cents added for each degree upward to 40 and over at $1.08: Carter Oil Co., Magnolia Petroleum Co., Pure Oil Co., Rock Island Refining Co., Shell Petroleum Corp., Sinclair Prairie Oil Marketing Co., Skelly Oil Co. and Wilcox Oil & Gas Co. All others begin their schedule at below 29 degrees, 84 cents, excepting Phillex Oil Co., which begins with below 31 degrees at 88 cents.

Column 1—Effective September 29, The Texas Co. in Oklahoma; Stanolind Crude Oil Purchasing Co. in Kansas and Oklahoma; Anderson & Prichard, Inc., in Oklahoma; Bell Oil & Gas Co. in Oklahoma; Carter Oil Co. in Oklahoma and Kansas; Deep Rock Oil Co. in Oklahoma; Derby Oil Co. in Kansas; Globe Refining Co. in Oklahoma; Golden Rule Refining Co. in Kansas; Gypsy Oil Co. in Oklahoma and Kansas; Kanotex Refining Co. in Kansas; Magnolia Petroleum Co. in Oklahoma; Mid-Continent Petroleum Corp. in Oklahoma; National Refining Co. in Kansas and Oklahoma; Shell Petroleum Corp in Kansas and Oklahoma; Sinclair Prairie Oil Marketing Co. in Kansas and Oklahoma; The Texas Co. in Oklahoma; Tide Water Oil Co. in Oklahoma; Vickers Refining Co. in Kansas; Continental Oil Co. in Kansas and Oklahoma; Empire Pipe Line Co. in Oklahoma and Kansas; Phillex Oil Co. in Kansas and Oklahoma; Pure Oil Co. in Oklahoma; Skelly Oil Co. in Kansas. Effective September 29, by White Eagle Oil Corp. in Kansas; on October 1 by Barnsdall Refineries, Inc., in Oklahoma.

Column 2—Effective September 29, by the Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Bell Oil & Gas Co., Continental Oil Co. Effective September 29 in the Van Pool, Van Zandt County, the Pure Oil Co. posted below 29 degrees, 84 cents, with 2 cents added for each degree up to 40 and over at $1.08.

Column 3—Effective September 29 by the Texas Co., Magnolia Petroleum Co., Gulf Refining Co. Effective December 22, Stanolind Oil & Gas Co. in Pine Island, Louisiana, and Marion County, Texas, posted below 29 degrees, 79 cents, with 2 cents added for each degree up to 40 and over at $1.03. For Standard Oil Co. of Louisiana's prices see Columns 10 to 16, inclusive.

Column 4—Effective September 29 by the Texas Co., Humble Oil & Refining Co., Magnolia Petroleum Co., Sinclair Prairie Oil Marketing Co. and H. F. Wilcox Oil & Gas Co. On same day Phillex Oil Co. posted below 31 degrees, 71 cents, with 2 cents added for each degree up to 40 and over at 91 cents.

Column 5—Effective September 29 by the Texas Co., Humble Oil & Refining Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Wilcox Oil & Gas Co., Continental Oil Co. On same day, Phillex Oil Co. posted below 31 degrees, 61 cents, with 2 cents added for each degree upward to 40 and over at 81 cents.

Column 6—Effective September 29 by the Humble Oil & Refining Co. and Tide Water Oil Co., and on September 30 by the Texas Co. which on September 29 had posted a schedule of $1.07 to $1.12, with a 1-cent spread on each degree.

Column 7—Effective September 29 by the Stanolind Oil & Gas Co.

Column 8—Effective September 29 by the Humble Oil & Refining Co., Gulf Pipe Line Co., Shell Petroleum Corp., Pure Oil Co., Sinclair Prairie Oil Marketing Co. On October 2, Magnolia Petroleum Co. posted Lockport, Louisiana: 30-30.9 degrees, 84 cents, with 2 cents added for each degree upward to 34 and over at $1.12, and in Cameron Meadows and Iowa, Louisiana: Below 30 degrees, 72 cents with 2 cents added for each degree up to 34 and over at $1.02. These prices were 2 cents higher on each degree than Magnolia prices posted on September 29. Effective September 29, Shell Petroleum Corp. posted in Iowa, Louisiana, district: Below 30 degrees, 70 cents, with 2 cents added for each degree upward to 34 degrees and over at $1.00; and in Black Bayou and White Castle, Louisiana: Below 30 degrees, 80 cents, with 2 cents added for each degree upward to 34 degrees and over at $1.10.

Column 9—Effective September 30, the Texas Co. (On September 29, the Texas Co. had posted a schedule 2 cents lower on each degree, but changed it on September 30.)

Columns 10, 11, 12, 13, 14, 15, 16—Effective September 29, by the Standard Oil Co. of Louisiana and Louisiana Oil Refining Co.

Column 17—Effective September 29, by the Louisiana Oil Refining Co.

(California Crude Oil Prices on Page 29)

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

East Texas	$1.08
Stratman, Kans. (Sept. 29, 1933)	1.08
Corsicana (heavy) (June 17, 1933)*	.30
Other fields	(See gravity table)

Note—In East Texas, effective September 29, 1933, by Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Shell Petroleum Corp., Gulf Pipe Line Co., Tide Water Oil Co., Sinclair Prairie Oil Marketing Co., Magnolia Petroleum Co., Sun Oil Co., Panola Pipe Line Co., and Empire Oil & Refining Co.
*Magnolia Petroleum Co.

West Texas

Crane, Upton, Crockett, Howard, Glasscock, Mitchell (Sept. 29, 1933)	$.70
Ector, Winkler and Pecos Counties and Lea County, New Mexico (Sept. 29, 1933)	.75
Pecos County, Yates shallow pool (Sept. 29, 1933)*	.85
Jones and Fisher Counties	See gravity table.

Note—Effective September 29, 1933, by Humble Oil & Refining Co., Texas Co., Gulf Pipe Line Co., Shell Petroleum Corp., Magnolia Petroleum Co., and by Stanolind Oil & Gas Co. in Winkler County, Texas.
*Shell Petroleum Corp.

Gulf Coast

Grade A and Grade B specifications discontinued by leading buyers..... (See gravity table)

Tomball (see note)*	$1.15
Livingston (Sept. 29, 1933)†	1.00
Cleveland (Jan. 11, 1934)	1.00
Greta (Sept. 29, 1933)	.85
Refugio, light	(See gravity table)
Refugio, heavy (Sept. 29, 1933)‡	.85
Markham and High Island	(See Gulf Coast gravity table)
Conroe	(See Conroe gravity table)

Note—Tomball, effective September 29, by Humble Oil & Refining Co., and October 2 by Magnolia Petroleum Co., and November 10 by Stanolind Oil & Gas Co.
*Greta posted by Texas Co. †Shell Petroleum Corp. ‡Refugio heavy, by Humble Oil & Refining Co. Cleveland (Liberty County), posted by Magnolia Petroleum Co.

South Central and Southwest Texas

(See note below table)

Darst Creek	.87
Mirando	.80
Luling (Sept. 29, 1933)	.75
Pettus	1.05
Salt Flat	.87
Lytton Springs (Sept. 29, 1933)	.95
Duval County (Sept. 29, 1933)	.80
Saxet	.85

Note—Effective on September 29 by Humble Oil & Refining Co. in Darst Creek, Mirando, Pettus, Salt Flat and Saxet. Effective September 29 in Darst Creek by Gulf Pipe Line Co. and Texas Co. Effective October 2 by Magnolia Petroleum Co. Effective in Pettus and Salt Flat on September 29 by Humble Oil & Refining Co. and Gulf Pipe Line Co. Luling and Lytton Springs by Magnolia Petroleum Co. Duval County by Texas Co. Saxet, effective September 29, by Humble Oil & Refining Co. and Texas Co.

(Continued on Page 29)

TANK WAGON MARKETS

Quotations for gasoline and kerosene in United States, as furnished by the larger marketing concerns, include taxes

January 23, 1934

Taxes

The gasoline quotations given in the following tables include the 1 cent Federal tax, as well as state, county and city taxes. The gasoline quoted is the regular or standard grade. In most marketing areas a third grade and a premium grade are also available.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Atlanta, Ga.	21.0	21.0	7.0	14.0
Augusta	21.0	21.0	7.0	14.0
Macon	21.5	21.5	7.0	14.0
Savannah	21.5	21.5	7.0	14.0
Birm'ham, Ala.	23.5	23.5	8.0	12.0
Mobile	22.5	22.5	8.0	13.5
Montgomery	21.0	21.0	8.0	14.5
Jackson, Miss.	20.5	20.5	7.0	13.0
Vicksburg	21.0	21.0	7.0	13.0
Jack'ville, Fla.	21.5	21.5	8.0	12.5
Miami	21.5	21.5	8.0	13.5
Pensacola	21.5	21.5	8.0	13.5
Tampa	21.5	21.5	8.0	12.5
Lexington, Ky.	20.0	20.0	6.0	11.0
Covington	19.5	19.5	6.0	11.0
Louisville	19.5	19.5	6.0	11.0
Paducah	18.5	18.5	6.0	10.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 2 cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia and Mississippi include 1 cent state tax; in Alabama, an inspection fee of one-half cent on kerosene and one-fortieth cent on gasoline. To Pensacola, Mobile and Birmingham state taxes on gasoline add 1 cent city tax.

Southwestern District

MAGNOLIA PETROLEUM CO.

	Gasoline Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Dallas, Tex.	15.5	19.0	5.0	8.5
Fort Worth	15.5	19.0	5.0	8.5
Houston	14.5	18.0	5.0	8.5
San Antonio	15.5	19.0	5.0	8.5
El Paso	16.0	19.5	5.0	11.0
Muskogee, Ok.	14.5	18.0	5.0	8.5
Okla. City	14.5	18.0	5.0	8.5
Tulsa	14.5	18.0	5.0	8.5
Ft. Smith, Ark.	13.6	17.1	7.0	9.0
Little Rock	16.6	19.1	7.0	9.0
Texarkana	13.5	17.0	5.0	8.5

Standard Oil Co. (Indiana)

	Gasoline Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Chicago	17.3	17.3	4.0	9.7
Decatur, Ill.	17.7	17.7	4.0	10.2
E. St. Louis	17.0	16.2	4.0	9.5
Joliet	17.7	17.7	4.0	10.2
Peoria	17.7	17.7	4.0	10.2
Quincy	17.5	17.5	4.0	10.0
Davenport, Ia.	17.6	17.6	4.0	10.1
Des Moines	17.6	17.6	4.0	8.0
Mason City	17.6	17.6	4.0	10.1
Sioux City	17.2	17.2	4.0	9.7
Duluth, Minn.	18.2	18.2	4.0	10.4
Mankato	17.8	17.8	4.0	10.3
Minneapolis	17.9	17.9	4.0	10.4
LaCrosse, Wis.	19.3	19.3	4.3	10.8
Green Bay	18.7	18.7	5.0	10.2
Milwaukee	18.2	18.2	5.0	9.7
Madison	18.4	18.4	5.0	9.9
Detroit, Mich.	17.5	17.5	4.0	10.5
Grand Rapids	17.7	17.7	4.0	10.2
Saginaw	18.0	18.0	4.0	10.5
Evansville, Ind.	15.5	15.5	5.0	10.0
Indianapolis	18.7	18.7	5.0	10.2
South Bend	19.0	19.0	5.0	10.5
Fargo, N. Dak.	19.6	19.6	4.0	21.1
Huron, S. Dak.	19.9	19.9	5.0	11.4
Sioux Falls	19.4	18.4	5.0	10.9
K. C. Mo.*	16.7	16.7	4.0	8.2
Springfield*	16.6	16.6	4.0	9.1
St. Louis	15.7	15.7	3.5	8.7
St. Joseph*	16.3	16.3	4.0	8.3
Wichita, Kans.	15.6	15.6	4.0	9.1
Bartlesville, Ok.	16.0	18.5	5.0	8.5

*State tax 2 cents, 1-cent city tax and 1-cent Federal tax.

Effective June 1, 1933—Discounts off tank wagon price to consumers on 500 gallons or more per month in territory outside of Chicago metropolitan area: 2 cents on Ethyl and Red Crown gasolines, and 1 cent on Stanolind gasoline. One-half cent additional discount in Chicago division.

Effective July 1, 1933—Discounts on resellers authorized agent's agreement made off the service station price throughout the territory as follows: 2.5 cents on Red Crown, Ethyl and Standard Red Crown gasolines, and 1.5 cents on Stanolind gasoline. Half of reduction from normal service station price shall be absorbed by resellers up to maximum of 1 cent on all grades.

In St. Louis and St. Louis County, Missouri, the following discounts are in force: For 300 to 3,000 gallons monthly, 2 cents on regular and premium, 1 cent on third grade; for 3,001 to 10,000 gallons, 3 cents on regular and premium, 1 cent on third grade; for more than 10,000 gallons, 3½ cents on regular and premium, 1 cent on third grade.

Stanolex Furnace Oil in Chicago

Effective September 13, 1933, prices f.o.b. Chicago, tank wagon prices: No. 1 (36-40 lt. stw. zero), under 100 gallons, 8¼ cents; No. 2 (30-34 stw. zero), 7¾ cents; No. 3 (22-26 zero), 7¼ cents; No. 4 under 300 gallons (12-16 zero), 6¼ cents; viscosity of No. 4, 90-115 at 100° F.; No. 5 under 300 gallons, 6 cents; for deliveries of 100 gallons or more deduct 1 cent.

Naphtha

	Tank wagon
Oleum spirits	13.9
V.M.&P. naphtha	15.9
Cleaners' naphtha	15.0
Stanisol	15.0

Prices f.o.b. Chicago, September 13, 1933. Each of above prices subject to discount of 1 cent per gallon for 150-gallon lots if covered by contracts.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Atl'tic City, N.J.	17.5	17.0	4.0	10.0
Newark	16.8	15.5	4.0	9.5
Annapolis, Md.	18.1	17.6	5.0	10.0
Baltimore	17.6	17.1	5.0	9.0
Cumberland	19.1	19.3	5.0	12.7
Wash'g'n, D. C.	15.8	15.3	3.0	11.0
Danville, Va.	20.3	19.7	6.0	12.9
Norfolk	18.7	17.0	6.0	11.2
Petersburg	19.5	19.0	6.0	11.4
Richmond	19.1	18.6	6.0	11.7
Roanoke	20.3	16.5	6.0	12.9
Charls'n, W.Va.	18.5	18.0	5.0	12.6
Parkersburg	17.8	17.3	5.0	11.2
Wheeling	18.5	18.0	5.0	12.2
Charlotte, N. C.	21.9	21.4	7.0	13.5
Hickory	22.2	21.7	7.0	13.7
Mt. Airy	22.2	21.7	7.0	13.8
Raleigh	21.7	21.2	7.0	13.3
Salisbury	22.0	21.5	7.0	13.6
Charleston, S.C.	19.7	19.2	7.0	11.3
Columbia	21.5	21.0	7.0	13.2
Spartanburg	21.9	21.1	7.0	13.5

Note—Dealer contracts are written at 2½ cents above the posted tank car price, less a voluntary allowance of one-half cent per gallon. This affects all points. Kerosene 1 cent off tank wagon for 25 gallons or more under contract except New Jersey and Baltimore, Md.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
N. Orleans, La.	19.3	17.0	*7.0	†12.0
Baton Rouge	18.7	18.2	6.0	†12.0
Alexandria	19.8	19.1	*7.0	†10.0
Lafayette	19.8	19.3	*7.0	†12.0
Lake Charles	19.7	19.2	*7.0	†12.0
Shreveport	17.5	15.5	6.0	†12.0
Knoxville, Tenn.	23.2	22.7	8.0	13.0
Memphis	21.8	21.0	8.0	9.5
Chattanooga	23.0	19.0	8.0	12.0
Nashville	22.4	18.5	8.0	11.0
Bristol	23.5	21.0	8.0	14.0

*Includes city tax of 1 cent. †Louisiana kerosene prices include 1-cent state tax.

Commercial consumers for tank wagon delivery pay following amounts over tank car price, basis yearly deliveries:

1,000 to 75,000 gallons	2.5
75,000 to 300,000 gallons	1.5
Over 300,000 gallons	1.0

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA*

	Gasoline Tank wagon†	Posted retail	Incl'ds tax	Kero. tank wagon
San Francisco	16.5	19.5	4.0	12.5
Los Angeles	16.0	19.0	4.0	12.5
Fresno, Calif.	17.5	20.5	4.0	14.0
Phoenix, Ariz.	18.5	21.5	6.0	‡16.0
Reno, Nev.	20.0	23.0	5.0	15.5
Portland, Ore.	19.0	22.0	5.0	13.5
Seattle, Wash.	19.0	22.0	6.0	13.5
Tacoma	19.0	22.0	6.0	13.5
Spokane	22.0	25.0	6.0	18.0

*Retail prices posted by Standard Stations, Inc., a subsidiary.

†Prices are at company's plant or depots, as company does not operate stations. A 4-cent per gallon discount is given dealers and mustomers taking tank wagon lots except in Phoenix where the discount is 1 cent. ‡Includes 5 cents state tax.

New York and Part of New England

STANDARD OIL CO. OF NEW YORK

	Gasoline Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Albany, N. Y.	15.6	16.6	4.0	9.5
New York	15.5	16.5	4.0	8.5
Buffalo	16.2	17.2	4.0	9.5
Rochester	15.0	16.0	4.0	9.5
Syracuse	16.1	17.1	4.0	9.0
Boston, Mass.	15.5	16.5	4.0	8.0
Augusta, Me.	17.0	18.0	5.0	9.0
Manch't'r, N.H.	17.7	18.7	5.0	8.5
Burlington, Vt.	18.3	19.3	5.0	9.0

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Philadelphia, Pa.	15.0	16.0	4.0	10.0
Pittsburgh	16.5	17.5	4.0	10.0
Allentown	16.5	17.5	4.0	10.0
Erie	16.5	17.5	4.0	10.0
Scranton	16.5	17.5	4.0	10.0
Altoona	16.5	17.5	4.0	10.0
Dover, Del.	16.5	17.5	4.0	10.0
Wilmington	16.5	17.5	4.0	10.0
Boston, Mass.	15.5	16.5	4.0	8.5
Springfield	16.1	17.1	4.0	8.0
Worcester	16.0	17.0	4.0	8.5
Hartford, Conn.	14.9	15.9	3.0	8.5
New Haven	14.7	15.7	3.0	8.5
Providence, R.I.	14.5	15.5	3.0	8.5

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Denver, Colo.	18.5	21.0	5.0	12.5
Pueblo	16.5	19.0	5.0	13.0
Grand Junction	20.5	23.0	5.0	15.0
Casper, Wyo.	19.0	21.5	5.0	11.0
Cheyenne	17.5	20.0	5.0	13.0
Butte, Mont.	20.5	23.0	5.0	17.5
Billings	22.5	25.0	6.0	16.5
Helena	22.0	24.5	6.0	17.5
Great Falls	22.0	24.5	6.0	17.5
Salt Lake, Utah	21.5	24.0	5.0	16.0
Boise, Idaho	22.5	25.0	6.0	18.0
Twin Falls	22.5	25.0	6.0	18.0
Albu'que, N. M.	19.0	22.0	*7.0	13.0

*One-cent city tax.

Effective October 21, 1933, discount to dealers with or without contract throughout Continental territory except New Mexico as follows: Service station price less 3 cents for regular grade and 2 cents for third grade.

Canada*

IMPERIAL OIL, LTD.
Imperial 3-Star Gasoline

	Gasoline Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Hamilton, Ont.†	26.5	27.5	6.0	17.5
Toronto, Ont.†	26.5	27.5	6.0	17.5
Brandon, Man.*	31.0	34.5	7.0	22.5
Winnipeg, Man.	28.7	31.7	7.0	20.2
Regina, Sask.	29.0	32.0	6.0	21.5
Saskatoon, Sask.	31.3	34.3	6.0	24.3
Edmonton, Alta.	31.2	34.2	6.0	23.7
Calgary, Alta.	28.5	31.5	6.0	21.0
Vanc'ver, B.C.†	30.0	31.0	7.0	24.0
Montreal, Que.	24.0	27.0	6.0	17.0
St. Johns, N. B.	26.5	30.5	7.0	21.0
Halifax, N. S.	25.5	29.5	6.0	21.0

*Imperial gallon used in Canada. †Dealer discount posted tank wagon on gasoline in Ontario and British Columbia subject to dealer's discount of 3 cents per gallon.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Ohio points	18.5	17.5	5.0	*13.5

*Includes state tax of 1 cent, effective July 22.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline Tank wagon	Service station	Incl'ds tax	Kero. tank wagon
Omaha	18.3	19.3	5.0	9.0
McCook	17.0	17.0	5.0	9.0
Norfolk	18.8	19.8	6.0	11.3
N. Platte	19.8	20.8	5.0	9.0
Scottsbluff	19.3	19.3	5.0	11.0

Note: Discount to dealers and AAA commissions. From service station price: Red Crown Ethyl and Standard Red Crown gasoline, 3 cents. Reliance (third grade) gasoline, 2 cents. Rentals under lease and agents agreement, one-half cent per gallon additional.

Discount to consumers under contract (large consumers under contracts and governmental units): On tank wagon deliveries of gasoline on monthly purchases of 500 gallons, or yearly purchases of 6,000 gallons, from the service station price: Red Crown Ethyl and Standard Red Crown Gasoline, 3 cents per gallon; Reliance (third brand) gasoline, 1 cent per gallon.

Retail Price Changes

Regular-Grade Gasoline and Kerosene

Standard Oil Co. of New Jersey January 10 reduced the service station price of gasoline .8 cent in Newark. January 11 it reduced the service station price of gasoline .7 cent in Norfolk and January 13 reduced it one-half cent further. January 12 it reduced the service station price of gasoline in Roanoke one-half cent and January 14 reduced it one-half cent further.

Atlantic Refining Co. January 19 advanced the tank wagon price of gasoline one-half cent and the service station price 1 cent in Wilmington, Del. January 12 it reduced the tank wagon price of kerosene one-half cent in Springfield, Mass.

Standard Oil Co. (Nebraska) January 15 reduced the tank wagon and service station price of gasoline 1½ cents in McCook.

START OKLAHOMA PROSECUTIONS

Prosecution of oil code violations are to be started within the next 10 days. In Oklahoma the cases are to be handled through the state Federal district courts, A. W. Walker, Jr., attorney for the Petroleum Administrative Board, indicated during the week.

W. C. Lewis, acting Federal district attorney in Oklahoma City, has assigned Elmer Hodges, assistant, to handle the cases and he has been in conference with Mr. Walker for several days, deciding on the procedure. This method was adopted to shift the bulk of the work from the code's legal committee, which already is swamped with complaints and cases in preparation.

Mr. Walker has been in Oklahoma City about two weeks and most of this time has been given to clearing the path for handling these cases. He is not investigating hot oil conditions, but intimated that if any such information comes to his attention it will be considered.

It was intimated that the bulk of the code violations in Oklahoma are understood to be among the marketers, many of them having to do with business practices and contracts. It is understood the first case to be filed will be against a marketing company.

ORGANIZE HIGHWAY USERS

Preliminary organization of a New York State Highway Users Conference was begun January 3 at a luncheon meeting attended by representatives of state and national trade associations and related groups. The American Petroleum Industries Committee was represented by Director Baird H. Markham and the New York Petroleum Industries Committee by Secretary Joseph P. Brophy.

Arrangements were made for a mass meeting to be held at Albany, N. Y., on January 19. At that time definite plans will be formulated for a statewide campaign with the aid of the New York Highway Users Conference with the purpose of reducing the State's 3-cent gasoline tax to 2 cents and preventing diversion of motor vehicle and gasoline tax revenue to uses other than highway construction, improvement and maintenance.

FEWER LICENSE TAGS ISSUED

CALGARY, Alberta, Jan. 20.—Motor licenses issued in Alberta during 1933 totaled 85,250, including 71,076 for passenger vehicles and 14,174 for trucks. The total represents a slight decrease from 1932, when 86,010 licenses were issued.

Chicago Market More Optimistic After Approval of Marketing Agreements

BY SPECIAL CORRESPONDENT

CHICAGO, Jan. 22.—The trade appears to have been caught by surprise by the announcement that Administrator Ickes had approved the pooling and marketing agreements. At least this was indicated in this market, despite the general feeling that eventually some such arrangement would be made effective.

Most sellers promptly withdrew from the market and quotations at the start of the week on gasoline were as they had been at the close of the preceding week, largely nominal. Sellers' ideas, however, were toward sharp advances in price. At the same time, such buyers as could be found who were actively in the market indicated their own bid prices might be somewhat higher than a few days earlier.

Actually, the amount of business done soon after the announcement was quite limited. Sellers did not wish to jeopardize their chances of obtaining considerably higher prices later and buyers were still doubtful about the general situation. In general, feeling here was much relieved by the information that some sort of basis was in effect and that much of the recent uncertainties should be removed.

Until announcement of approval of the agreements was made, the market had been extremely soft, and prices were at the low point of the long and persistent decline. The week ended January 20 in point of the volume of business in the spot market was one of the most disappointing in a long time. Jobbers simply refused to consider offers of material except in a few cases where it was absolutely necessary, and they relied on their contract material to carry them through. In view of the fact that gasoline consumption generally has been quite good, jobbers' gasoline stocks are generally regarded as being extremely low. For this reason, many in the trade believe large scale buying is a distant possibility, if the market continues to give indication of strength.

Much more interest was shown at the start of the new week. Jobbers and car lot marketers were making inquiries on the best scale in some time.

The central states' tank wagon and service station markets have made a better showing during the recent tank car price weakness than expected, and also a better one than in some other regions. For this reason, it is considered that strengthening of the tank car price structure should have little resistance.

Gas and Fuel Oils

Gas oil and fuels of zero cold test continue fairly firm in some cases, too scarce in others, especially No. 3 oil. In the case of the gas oils and fuels used for industrial purposes, demand is spotty but the aggregate business is fairly large and is causing some optimism. Firmness of the general crude market is still presenting a firm background for railroads' fuel and that for other large consumers.

Kerosene

Kerosenes have shown no material change, other than the natural firming which could not be considered a reflection of the improvement in gasoline. However, demand has been extremely dull.

The good grades of heating oils have reflected the mild weather by coming into better supply and not such active demand as early in January. Nevertheless, the price recessions, if any, have been small and the trade generally feels the easiness will easily be offset by seasonable weather. Some refiners who have been making large quantities of distillate are now going back to kerosene, anticipating a good spring demand.

Solvents, Naphthas

Solvents and naphthas reveal little change. The trend has been fractionally lower in price, along with recent easiness in gasoline, although not materially so. Purchase is in fairly good quantities, and sellers consider this market has been well stabilized.

Lubricants

Persistent firmness in eastern lubs has been optimistically received here, although it does not seem to have spread elsewhere. Motor oil gallonage is reported good and there is still a fair call for winter items.

Wax

Wax maintains its strength and even increases it, although no further price advances have been made. Export and domestic business both show good totals.

Petroleum Coke

Petroleum coke is quiet, but is strong and is maintaining a good market position, prices unchanged.

Crude Oil Prices

(Continued from Page 27)

Effective September 29 in Salt Flat by Shell Petroleum Corp.

Rocky Mountain States

Iles, light (Sept. 29, 1933)	$.96
Iles, heavy (Sept. 29, 1933)	.90
Florence, Colo. (June 17, 1933)	.30
Fort Collins and Wellington, Colo. (June 17)	(See Salt Creek prices)
Big Muddy (Sept. 29, 1933)	1.01
Frannie, light (Sept. 29, 1933)	.87
Frannie, heavy (Sept. 29, 1933)	.62
Salt Creek and LaBarge (Sept. 9, 1933)	See Stanolind Mid-Continent price schedule
Grass Creek, light (Sept. 29, 1933)	1.18
Grass Creek, heavy (Dec. 15, 1932)	.45
Elk Basin (Sept. 29, 1933)	1.18
Rock Creek (Sept. 29, 1933)	1.02
Dutton Creek (July 8, 1933)	See Mid-Continent gravity prices
Lance Creek (Dec. 16, 1932)	.92
Poison Spider (Mar. 5, 1931)	.70
Hudson (June 2, 1931)	.65
Lander (Mar. 5, 1931)	.40
Rex Lake (Feb. 22, 1930)	1.10
Osage (Jan. 18, 1933)	.52
Lost Soldier (Sept. 30, 1933)	.55
Hamilton Dome (Dec. 16, 1932)	.25
Torchlight (Sept. 29, 1933)	1.13
Greybull (Sept. 29, 1933)	1.13
Pondera	1.15
Sunburst (Sept. 29, 1933)	1.35
Cat Creek, Montana	1.07
Hogback (Sept. 29, 1933)	1.11
Lea County, N. Mex. (Sept. 29, 1933)	.75
Maljamar (Sept. 29, 1933)	.70
Artesia-Jackson (Dec. 1, 1933)*	.75

Note—Salt Creek, Torchlight, Elk Basin, Grass Creek, Frannie, Greybull, Hogback and Iles by Stanolind Oil & Gas Co. Elk Basin, Grass Creek light, Big Muddy, Rock Creek and Sunburst by Ohio Oil Co. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Lea County, effective September 29, 1933, by Humble Oil & Refining Co. and other buyers; Fort Collins, Wellington, Orchard, Florence, Big Muddy, Cat Creek, Rattlesnake and Table Mesa by Continental Oil Co. Osage posted by Arro.

*Continental Oil Co.

North Louisiana and Arkansas

Smackover, Ark. (all grades)	$.70
Tullos-Urania, La. (Jan. 13, 1934)	.87
Nevada, Ark. (Sept. 29, 1933)	.60
East El Dorado (Sept. 29, 1933)	.70
Other fields	(See gravity table)

Note—Smackover: Effective September 29, 1933, Texas Co., Magnolia Petroleum Co., Standard of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co. and Phillips Petroleum Co. East El Dorado posted by Magnolia Petroleum Co. and Gulf Refining Co., Nevada by Standard Oil Co. of Louisiana. Urania posted by H. L. Hunt, Inc., and Louisiana Oil Refining Co.

Eastern States

TIDE WATER PIPE CO.
(Effective October 4, 1933)

Bradford, Pa.	$2.45
Allegany, N. Y.	2.45

SOUTH PENN OIL CO.
(Effective October 4, 1933)

Pennsylvania Grade Oil in National Transit Lines (Bradford Field)	$2.45
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.12
Pennsylvania Grade Oil in Eureka Pipe Line lines	2.07
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.93
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (Oct. 2, 1933)	1.32

PENNZOIL CO.
(Effective October 4, 1933)

Pennsylvania Grade Oil in National Transit Lines:	
Group A (Includes Cochran, Franklin, Hamilton and Doolittle districts.)	$2.37
Group B (Includes Titusville district.)	2.36
Group C (Includes Turkey and Tidioute districts.)	2.35
Group D (Includes Bear Creek and Porkey districts.)	2.34
Group E (Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kennerdell, Emlenton, Tiona, Lacy and Kinzua districts. Price depends on length of pipe line haul to plant at Oil City.	2.32

PURE OIL CO.
(Effective October 4, 1933)

Cabin Creek, W. Va.	$2.17
Bradford Hollow, W. Va.	2.17
Kelly Creek, W. Va.	2.17

Middle Western States

OHIO OIL CO.
(Effective September 29, 1933)

Lima	$1.30
Illinois (Jan. 5, 1934)	1.13
Princeton, Ind. (Jan. 5, 1934)	1.13
Plymouth	Shut in
Western Kentucky	1.13
Midland, Mich. (Sept. 30, 1933)*	1.03
Oceana, Mich. (Oct. 5, 1933)	.90
Somerset, Ky. (Sept. 30, 1933)	1.23
Hart County, Ky. (Oct. 1, 1932)	1.13

*Posted by Pure Oil Co. Producers Pipe Line Co. pays 5 cents per barrel over Pure Oil Co.'s posted price. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and posted price includes premium. Hart County, Kentucky, crude purchased by Stoll Refining Co. Oceana posted by Old Dutch Refining Co. and Naph-Sol Refining Co.

Canada

Ontario (September 9, 1933):	
Petrolia*	$2.10
Oil Springs	2.17
Turner Valley (Dec. 9, 1933):†	
Clear naphtha	$3.15
Discolored naphtha	2.91
Crude oil, 50 gravity	2.86
Crude oil, 45 to 49.9	2.07
Crude oil, 40 to 44.9	1.50

*Imperial Oil, Ltd. †Imperial Oil, Ltd., and Regal Oil & Refining Co.

Mexico

Panuco*	$.72

*F.o.b. ship, based on December transactions and exclusive of production and export taxes and bar dues.

California Crude Oil Prices

STANDARD OIL CO. OF CALIFORNIA

(Effective September 6, 1933)

For current purchases of crude oil at the well (unless otherwise specified). (All gravities above those quoted take highest price offered in that field.)

Gravity—	Long Beach	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda, Brea Canyon	Athens-Rosecrans	Torrance	Richfield	Whittier, La Habra	Montebello	Santa Fe Springs	La Habra-Coyote	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills	Coalinga	Coyote
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	....	$.65	$.65	$.65	$.65	....	$.65	$.57	$.57	$.57	$.65
15-15.9	.65	.65	.69	.69	.66	.69	....	.66	.65	.65	.65	....	.65	....	....	....	.65
16-16.9	.66	.65	.72	.73	.69	.73	....	.69	.67	.68	.65	....	.65	....	....	....	.66
17-17.9	.69	.65	.75	.76	.73	.76	....	.72	.70	.71	.65	....	.68	....	....	....	.68
18-18.9	.72	.65	.78	.80	.76	.79	....	.75	.74	.74	.66	....	.71	.61	.61	.59	.71
19-19.9	.75	.65	.81	.83	.80	.82	....	.78	.78	.78	.65	....	.74	.64	.65	.62	.74
20-20.9	.78	.68	.83	.87	.83	.85	....	.81	.83	.81	.66	....	.78	.67	.69	.65	.78
21-21.9	.81	.72	.86	.90	.87	.88	....	.83	.85	.84	.69	$.72	.81	.70	.73	.68	.81
22-22.9	.84	.76	.89	.94	.90	.92	....	.85	.89	.87	.72	.76	.84	.73	.76	.72	.84
23-23.9	.88	.81	.92	.97	.94	.95	$.83	.89	.93	.90	.76	.79	.87	.77	.79	.75	.87
24-24.9	.91	.85	.95	1.01	.97	.98	.86	.92	.97	.93	.80	.83	.90	.81	.82	.78	.90
25-25.9	.94	.89	.98	....	1.00	1.01	.90	.95	1.00	....	.85	.87	.93	.85	.85	.81	.93
26-26.9	.97	.93	1.01	....	1.04	1.04	.94	.98	1.04	....	.89	.90	.96	.89	.88	....	.96
27-27.9	1.00	.98	1.04	....	....	1.07	.97	....	1.08	....	....	.94	.99	.93	.91	....	.99
28-28.9	1.03	1.02	1.07	....	....	1.10	1.01	....	1.11	....	....	.98	1.02	.97	.94	....	1.02
29-29.9	1.06	1.05	1.09	....	....	....	1.04	....	1.15	....	....	1.01	1.05	1.01	.97	....	1.05
30-30.9	1.09	1.10	1.12	....	....	....	1.08	....	....	....	....	1.05	1.09	1.05	1.00	....	1.09
31-31.9	....	....	....	....	....	....	1.12	....	....	....	....	1.08	1.12	1.09	....	....	1.12
32-32.9	....	....	....	....	....	....	1.15	....	....	....	....	1.12	1.15	1.13	....	....	1.15
33-33.9	....	....	....	....	....	....	....	....	....	....	....	1.16	1.18	1.17	....	....	1 18
34-34.9	....	....	....	....	....	....	....	....	....	....	....	1.19	1.21	....	....	....	1.21
35-35.9	....	....	....	....	....	....	....	....	....	....	....	1.23	....	....	....	....	....
36-36.9	....	....	....	....	....	....	....	....	....	....	....	1.26	....	....	....	....	....
37-37.9	....	....	....	....	....	....	....	....	....	....	....	1.30	....	....	....	....	....
38-38.9	....	....	....	....	....	....	....	....	....	....	....	1.34	....	....	....	....	....

Additional Standard Oil Quotations

Elwood Terrac—F.o.b. ship, 33 degrees, $1.03; 34 degrees, $1.06; 35-35.9, $1.09; 36-36.9, $1.12; 37 degrees and over, $1.15.

Newhall—14 degrees and over, 57 cents.

McKittrick and Kern River—14 degrees and over, 57 cents.

Wheeler Ridge—14 to 17.9 degrees, 57 cents; 18-18.9, 58 cents; 19-19.9, 61 cents; 20-20.9, 64 cents; 21-21.9, 67 cents; 22-22.9, 70 cents; 23-23.9, 73 cents; 24-24.9, 76 cents; 25 degrees and over, 79 cents.

Kettleman Hills—33-33.9 degrees, 93 cents; 34-34.9, 96 cents; 35-35.9, 99 cents; 36-36.9, $1.02; 37-37.9, $1.05; 38-38.9, $1.08; 39 degrees and over, $1.11.

The Texas Co. posted in Shields Canyon, South Mountain and Santa Paula as follows: 14 to 17.9, 57 cents; 3 cents added for each degree up to and including 26-26.9 degrees at 84 cents; then 4 cents added for each degree up to and including 30 degrees and over at $1. Company posts Standard Oil Co.'s Montebello prices in Montebello and North Whittier, and posts Standard Oil Co. prices in Signal Hill, Alamitos Heights, Huntington Beach, Torrance, Richfield and Santa Fe Springs, all effective September 6.

General Petroleum Co. posts Standard Oil Co. prices in Athens, Rosecrans and Signal Hill; Alamitos Heights up to 26-26.9; Santa Fe Springs up to 35-35.9; Richfield up to 25-25.9; Brea Canyon and Olinda up to 25-25.9, and Torrance up to 25-25.9.

Union Oil Co., effective September 6, posts same prices as Standard Oil Co. in all fields in which both purchase, excepting that in Athens-Rosecrans, Union Oil Co. posts 21-21.9, 72 cents, and 33-33.9, $1.18; 34-34.9, $1.21, and 35-35.9, $1.24.

Associated Oil Co., effective September 6, posted same prices for the same grades as Standard Oil Co. of California, excepting that in some fields its gravity scale stops as follows: Huntington Beach, 26 degrees and over; Seal Beach and Alamitos Heights, 24 degrees and over; Coyote Hills, 23 degrees and over; Richfield, 25 degrees and over; Torrance, 25 degrees and over; Inglewood, 24 degrees and over; Santa Fe Springs, 35 degrees and over; Midway-Sunset, Elk Hills, Buena Vista Hills, 30 degrees and over. Also Associated pays 52 cents for oil of 11 to 13.9 gravity in McKittrick, Kern Front, Kern River, Midway-Sunset, Elk Hills, Buena Vista Hills and Coalinga.

NEWS FOR SALES DEPARTMENTS

Both Sides in St. Louis Controversy File Briefs

ST. LOUIS, Mo., Jan. 22.—Both sides in the dispute here between the Gasoline Service Station and Warehouse Employes Union and eight operating companies have received hearings before the Petroleum Labor Policy Board and both sides have filed briefs. A statement from the board says:

"The employes are insisting upon the following points:

"Classifying part-time workers at a salary of 56 cents an hour with no weekly minimum.

"A starting salary of $70 a month for the first three months and a minimum of $75 per month thereafter for washers and porters.

"A salary of $90 a month for other filling station attendants during the first three months, $115 after they have worked for three and up to nine months, and $135 after continuous employment of more than nine months.

"The payment to agents and managers in charge of stations of $5 additional a month for the first man working under him and $2 for each additional man regularly employed under him and $1 for part-time employes.

"The companies asserted they were paying service station managers or agents $105 a month; full-time attendants or helpers $90; part-time attendants or helpers 43 cents an hour, and washers and porters $65 a month. The companies contended they could not increase the present schedule.

"The employes requested that each employe should be supplied with a uniform at the company's expense and that the uniform should be laundered at the company's expense and replaced at the company's expense.

"The companies replied that each company enabled employes to buy uniforms at low prices but that the companies were unable to go further than this.

"The employes asked that general working conditions and wages, when and as agreed on, should not be changed for a period of six months. Each company said it was ready to agree with its own employes to maintain general working conditions as presently existing or for a reasonable period when controversial issues were settled and to discuss with employes any proposed changes at least two weeks before instituting them.

"The employes asked that any member of the union should have the right to be represented by a representative of the union in case of controversy if the employe should be discharged, and to refer controversies to a third disinterested and impartial party elected by the employer and the union representative if the controversy could not be amicably adjusted.

"The companies said they would submit to the Petroleum Labor Policy Board for conciliation any problems which could not be satisfactorily adjusted between the management and the employes."

HITTING THE MOTORIST HARD

Following is a table, compiled by the National Highway Users Conference, of the total collections from Federal excise taxes borne by motorists up to December 1, 1933. The addition of the December collections will bring the total approximately to $250,000,000.

Commodity—	Amount collected
Gasoline	$158,415,550.78
Lubricating oil	20,006,631.48
Tires and tubes	22,376,037.27
Automobile trucks	2,802,790.34
Automobiles and motorcycles	31,062,363.23
Auto parts and accessories	3,886,167.78
Total	$238,449,540.93

TO RAISE ARKANSAS TAX

LITTLE ROCK, Ark., Jan. 20.—A 300-foot strip in Arkansas bordering on the state lines of Missouri, Oklahoma, Texas and Louisiana today became a "no man's land" by which Arkansas seeks to compete with lower gasoline tax rates of its neighboring states.

Governor Futrell signed the house bill providing that gasoline may be sold in that zone at the same rate of taxation existing in the state across the line.

The states separated from Arkansas by the main channel of the Mississippi River — Tennessee and Mississippi — were excluded from the bill and no zone can be created along the river.

Arkansas has a 6-cent tax rate, and both houses have agreed to raise it one-half cent to care for refunding of the highway debt.

Much Oil Is Being Shipped for Use of Japanese Navy

LOS ANGELES, Calif., Jan. 22.—A flood of oil is being shipped to Japan from the local port in Japanese-flag tankers, chiefly for use of the imperial Japanese navy.

Approximately 220,000 bbls. were being exported a few days ago in three vessels, the Nippon Tankers' motor tanker Teiyo Maru taking nearly 80,000 bbls. of fuel oil for the Japanese navy's storage base at Tokuyama; the Japanese navy tanker Ondo loading 60,000 bbls. for Tokuyama and the Iino Shoji express motor tanker Fujisan Maru taking 78,000 bbls. here and at Port San Luis for Osaka and Tsurumi.

The Japanese navy tanker Naruto recently took out 54,000 bbls. and was due from Japan to load a similar fuel cargo.

An additional 130,000 bbls. was taken to Osaka and Yokohama by the big British tanker Athelcrown, United Molasses Co. unit chartered to Mitsui & Co. She loaded 100,000 bbls. here and completed at Port San Luis.

SITES FOR GASOLINE STATIONS

DOVER, Del., Jan. 20.—The power of the Maryland State Planning Commission in connection with the location of gasoline stations along highways of the State has been defined as permitting the commission to make recommendations of sites. These recommendations must be submitted to the Maryland General Assembly for action.

PRICE-CUTTERS HIT ON ANOTHER NOVEL SCHEME

BUCHAREST, Rumania, Jan. 20.—A sharp fight between the guards of a petroleum train and bandits at Constanza Pallas recently attracted renewed attention to a gang of robbers who have been systematically attacking petroleum cars in suburban stations.

In the recent attack the bandits smeared the tracks with a tar preparation, stopping the trains bound for the petroleum tanks of Constanza. The guards were covered by the revolvers of the gang while the petroleum was drawn into tank trucks. The bandits had a complete organization of service stations, where they sold the petroleum at far below the standard price.

During the last months 10 petroleum trains were plundered by the gang. A whole district of Constanza was living on the proceeds of the robberies.

One Canadian Company's Action Starts Price War

CHATHAM, Ontario, Jan. 20.—An unprecedented gasoline situation has developed in central and western Ontario as a result of the recent action of Imperial Oil, Ltd., in putting on the market its "Imperial Blue" ethylized gasoline at 3 to 5 cents below its standard Three Star gasoline.

Following Imperial's action, British-American Oil Co., Supertest Petroleum Co. and other large refining and marketing organizations have met the new prices with low priced gasoline, and in some cases have reduced prices on their entire lines.

The Imperial company's action was taken apparently to protect its service stations from undercutting by smaller independent organizations. The factors entering into this undercutting included, it is asserted, contracts by some large refiners to sell unbranded gasolines to other companies for retail at a low point, certain tank truck owners operating on a margin of 1 cent a gallon and alleged to pay their drivers as low as $1 per day, distress gasoline imported from the United States at a low rate and retailed at correspondingly low prices, and gasolines blended in Canada from imported casinghead, crude oil and a cheap grade of gasoline. It is also asserted that tax evasion has been going on at a scale previously unsuspected.

The portion of Ontario so far affected is the Toronto truck area and farther west, the easternmost point being Oshawa. Consumption of gasoline in this area is estimated at 200,000 gallons a day on the basis of an average of 1 gallon per car, so that motorists are saving approximately $10,000 a day. The refiners are making little if anything on gasoline at the new price while truck tank operators are probably hard hit. Retailers in service stations are getting gasoline at a wholesale price which still permits a small profit.

The price cutting represents the first extensive price war in the history of gasoline marketing in Canada.

HEADQUARTERS IN FORT WORTH

FORT WORTH, Tex., Jan. 22.—The Southwestern Petroleum Co., Inc., a marketing company organized for distribution of lubricants, greases and oils throughout the United States with the exception of the New England states, has opened headquarters in the Fair Building. E. H. Beall is head of the company, Joseph P. Comyns sales manager and J. Swayne Cummings secretary.

CANADIAN IMPORTS ADVANCE

OTTAWA, Canada, Jan. 22.—Natural gasoline receipts in October advanced to 5,712,784 gallons, worth $451,538 from the September total of 2,956,529 gallons at $184,343. Importations of gasoline lighter than .8235 specific gravity at 60-degree temperature rose to 1,027,204 gallons appraised at $120,031. The September imports amounted to 757,863 gallons at $91,529.

AGREEING ON GREASE JOBS

An analysis of the lubrication price situation, made by J. H. Pile, editor of Check-Chart, reveals that there have been conventions of oil companies, jobbers, dealers and local associations on lubrication prices throughout the country and that they have agreed on a minimum price of $1 for a lubrication job, with prices ranging upward to $2 for the larger cars. In a few cases in restricted localities, prices on small cars have been dropped as low as 75 cents.

L. H. FLINN RESIGNS

L. H. Flinn, managing director-counsel for the Texas Petroleum Marketers Association and a member of the NRA regional oil code committee, has resigned from both positions effective January 15.

Five years ago independent petroleum marketers of Texas brought Mr. Flinn from New York City to reorganize their association. He enlisted the support of both major and independent oil companies and within a comparatively short time perfected one of the strongest state organizations of oil men in the country. The board of directors of the Texas Petroleum Marketers Association held a meeting in Houston, Tex., on January 9 and accepted the resignation with regret. Mr. Flinn was tendered a vote of gratitude for the efficient services rendered the association. Following the action on the resignation the board voted to indefinitely suspend association activities.

Mr. Flinn, who lives at 1718 Sunset Boulevard in Houston, states he has no definite plans for the future. For the time being he will devote some time to the further development of his farm and ranch near Houston.

Indictments Found Against Service Station Operator

LOS ANGELES, Calif., Jan. 22.—A. L. Pautz, owner of the A. L. Pautz Trucking Station, at Vernon and Alameda Streets, was indicted by the Federal grand jury on four counts of asserted violations of the code of fair competition, established for the control of the petroleum industry.

Pautz, in one count, was accused of violating the provisions of the interstate commerce regulations as set up in the National Industrial Recovery Act, in the sale of gasoline at less than the posted price. Each count states the defendant undersold competitors in charging 13½ cents a gallon when the posted price was 16 cents. Bond of $1,000 is required. The penalty provided for in the code of fair competition provides for a fine of $500 for each violation.

According to United States Attorney Hall and J. Howard Marshal, member of the National Petroleum Administrative Board, who is a special assistant to the attorney-general for the purpose of aiding in the Federal investigation of asserted unfair practices in the petroleum industry, the indictment was "just a starter," as indicating the code of fair competition contains teeth. They have arranged to keep the Federal grand jury in session in an effort to complete the investigation. More than 50 witnesses would be called to testify, it was said. These will include officials and employes of important companies, and their subsidiary companies, some of which were said to be masked in the guise of independent marketing and refining organizations, and a number of operators of filling stations.

MACHINE GUN USES GASOLINE

A gasoline-driven machine gun has been invented by a Japanese engineer, says Charles L. Flick, in a story copyrighted by the New York American. The new gun, operating on a principle said to be revolutionary, is declared the deadliest and most formidable modern field weapon. It is silent in operation, uses no gunpowder, and is credited with firing 10 times more bullets per minute than any other machine gun. The inventor, Joshitaro Shimizu, has submitted it to the Japanese general staff, which is believed to have recommended adoption of the weapon for the imperial army.

Late Fields

OKLAHOMA

Efforts are being made to substitute a decline curve deduction in taking potential tests in the Oklahoma City Field, in lieu of an open flow test to determine potentials in the Wilcox sand zone. An early hearing will be held before the Oklahoma Corporation Commission. The loss of gas energy and the steady encroachment of water in many of the leases may make the open flow tests difficult and may cause further intrusion of water.

In the northwest part of the Oklahoma City Field, in the U-7 zone, Ben Wofford's No. 1 Military Addition, SE cor. SW Section 34-12-3w, has been bailing and swabbing Wilcox sand for two weeks without success at total depth 6,478 feet. There is no gas in the area and the test has been swabbing drilling fluid from nearby wells. In order to overcome some of this condition the well will be drilled in with standard tools. The same company's No. 4 Military is shut down at 2,030 feet.

KANSAS

James Davis, of Wichita, has purchased an 80-acre tract in the E half NE Section 23-19-10w, Rice County, Kansas, northwest of Chase townsite, and about a mile and a half south of the Atlantic Oil Producing Co.'s Brandenstein lease, on which a producer has been recently completed, and expects to start a new test shortly.

Wayne A. Cameron's wildcat test in Sedgwick County was drilling in the Kansas City Lansing lime with nothing showing. The well is to be drilled deeper. It is No. 1 Cameron, NW of Section 11-26-1. The test is a wildcat northeast of Kechi area where several chat producers have been completed.

Next Osage Sale, Feb. 7, Offers Important Tracts

The first Osage County oil and gas lease sale of the year will be held in Pawhuska, Wednesday, February 7. A total of 13,680 acres will be offered to the highest bidders. These tracts are scattered over the county, with some important tracts to be offered in the area between the southern part of the Burbank Field and the Fairfax Pool. The following stipulation has beed added to the usual requirements:

"It is understood that no person, firm, partnership, joint stock association or corporation will be permitted to hold any interest in Osage County lands for oil and gas mining purposes by lease, assignment, drilling contract or otherwise, without first signing an agreement to fulfill all obligations, conditions and stipulations of code promulgated for the petroleum industry, and any amendments thereof, approved by the President of the United States, under the act of June 16, 1933, as to operation of said lease or leases."

Following is a partial list of tracts for sale in the western part of the county: In Township 24, Range 7. All of Section 6, NE quarter Section 10, SW quarter of Section 11, W half Section 16, NE quarter of Section 20, SW quarter of Section 35.

In Township 23, Range 7: NW quarter of Section 5, E half Section 6, SW quarter of Section 14.

In Township 26, Range 6: NW quarter of Section 26, NE of Section 27, SW of Section 35.

In Township 25, Range 6: SW quarter Section 3, the N half and SE quarter Section 15, all of Section 35.

DEATH OF MRS. WILLIAM HANLEY

Mrs. Johanna Hanley, widow of William Hanley, widely known oil operator and capitalist, died at her home in Bradford, Pa., on January 7. Mr. Hanley died several months ago. Mrs. Hanley is survived by the following sons and daughters: E. Edward and William L. Hanley, both of Bradford; Mrs. Jay Bird of Bradford; Mrs. Leon Healy of Buffalo, N. Y., and Miss Marcia Hanley of Bradford, and nine grandchildren.

With Production Curtailed East Texas Wells Show Small Volume of Water

By L. E. BREDBERG

There are now over 12,000 oil wells in the East Texas Field, and to date only 566 of these wells have reported any bottom hole water. Eighty-one of this number have apparently been plugged back successfully, shutting off the water. Twenty-four others have been abandoned, principally because of water trouble, these being on the extreme western edge of the field and drilled too deep when completed. However, several have been but small producers, located on the eastern edge and were abandoned because of small production making them unprofitable.

Subtracting the 81 "cleared" wells and the 24 dry holes leaves a total of 461 wells in the field now reported as showing salt water, varying from less than 1 per cent upward. One well is reported making 95 per cent water, producing 380 bbls. of water daily. This well is on the Florey farm in the Lindley Survey, on the extreme western edge in the Kilgore area, Gregg County. It was on this farm that the first salt water showed up in the field. The well was drilled by the Magnolia Petroleum Co., and was drilled too deep, penetrating the water sand. The second water well was located on the same farm a short distance to the north.

Five Water Sheds

There are five watersheds in the field, namely: The Sabine River, Glade Creek, Moody Creek, Hawkins Creek and Big Cypress Creek. Twenty of the salt water wells making a total of 271 bbls. of water per day are in the Sabine River watershed. Twenty-four wells making 490 bbls. are in the Glade Creek watershed, 41 wells making 469 bbls. are in the Moody Creek watershed, 17 wells making 66 bbls. are in the Hawkins Creek watershed and 15 wells making 415 bbls. are in the Big Cypress watershed. This is a total of 117 wells making 1,711 bbls. of water.

The field is producing nearly 400,000 bbls. of reported oil per day and the salt water production is only 8,232.90 bbls. at the present time. Salt water production, of course, is held back by the field being prorated, but if the field was opened up and allowed to produce as rapidly as it has at several times in its history, there would no doubt be several hundred wells showing water in the field, many of them showing large amounts of water, and handling such a vast volume of it would create a great problem to the producers.

Round Up of Water Showings

The Henderson or Joiner area of Rusk County, which includes wells in northeastern Cherokee and eastern Smith Counties, produces 3,702.90 bbls. of water daily, the greatest salt water producing area in the field. Two hundred wells in this area have produced water. The greater part of these are in Smith and the extreme western edge of Rusk, many of them being around the town of Overton where many wells were drilled in a hurry, and none too carefully, and where withdrawals have been heavy, overproducing having been on a large scale by some of the operators there.

There have been 250 wells in the Kilgore area producing water, some of which have been cleared up by plugging back and working over. This area is producing 2,819 bbls. of water daily.

The Longview area, Gregg County, has had 117 salt water wells on its list. These make 1,711 bbls. per day. The majority of these are around Gladewater and on the northwestern edge of the field, in Upshur County.

Several wells on the extreme southeastern corner of the field, southern Rusk County, are producing water, and one has been abandoned in this area, but this is the only part of the field where salt water has made any appreciable appearance on the east.

Prorating the field has built up bottom hole pressures in the field, such pressures averaging around 1,269 pounds at last report in December and has held back salt water encroachment.

Salt Water Disposal

With production being systematic the question of salt water disposal will be held in the background for a long time, but if production is heavy such a large amount of water will be produced that something will have to be done in regard to its elimination or disposal. No doubt many of the wells would have to be plugged immediately, and an expensive salt water disposal system would have to be installed, the present water sheds not being practical for this purpose. When salt water is produced in large volumes the State will step in and prevent the water from being run into the rivers, consequently disposal of this water is every producer's interest and he should adhere to proration, thereby holding back salt water and the time when it will become a serious problem.

ROCKY MOUNTAIN FIELDS

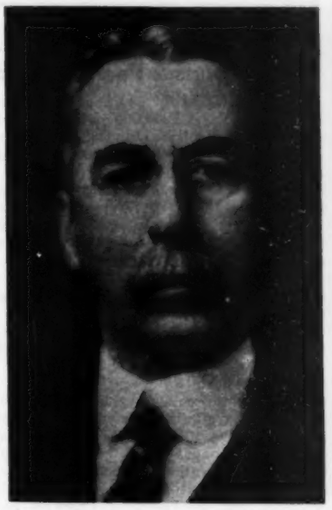
Average daily crude oil production, week ending January 20:

	Bbls.
WYOMING	
Salt Creek	18,380
Big Muddy	1,690
Badger Basin	40
Byron-Garland	440
Byron-East	10
Dallas Derby	310
Dutton Creek	90
Elk Basin	560
Ferris	0
Frannie	220
Grass Creek	580
Greybull	10
Hamilton Dome	600
Hudson	210
LaBarge	900
Lance Creek	190
Lost Soldier	1,100
Mule Creek	shut in
Midway	70
Notches	shut in
Oregon Basin	1,300
Osage	890
Pilot Butte	30
Rex Lake	shut in
Rock River	1,600
South Casper	shut in
Poison Spider	shut in
Teapot	20
Warm Springs	shut in
Total Wyoming	29,240
MONTANA	
Buckley-Border	410
Cat Creek	670
Cut Bank	1,180
Dry Creek	70
Kevin-Sunburst	3,500
Lake Basin	50
Pondera	830
Total Montana	6,710
COLORADO	
Florence	210
Fort Collins and Wellington	570
Iles Dome	1,080
Moffat	500
Orchard	120
Rangely	80
Tow Creek	190
Total	2,750
NEW MEXICO	
Artesia	580
Cooper area	110
Empire area	0
Eunice area	1,080
Getty Pool	0
Hobbs	33,470
Hogback	230
Hospah	shut in
Jal	1,530
Lea area	1,880
Jackson	1,050
Maljamar	140
Rattlesnake	770
Table Mesa	90
Total New Mexico	40,930
Total all fields	79,630
Total previous week	80,750
Difference	1,120

Mr. Nutting Was Gifted as an Organizer and Engineer

Louis Blackstone Nutting, president of the Foster Wheeler Corp., who died January 12 in his home in New York, won a reputation as an engineer, salesman and organizer of men.

After the United States entered the



LOUIS B. NUTTING

World War, Mr. Nutting was active in developing standardized water-tube boilers for cargo vessels, the plans for which were presented to the Government. They could be manufactured in any boiler shop and 130 vessels were equipped with them.

The Foster Marine Boiler Corp. was formed at the termination of the war to take over the construction of these boilers from the designs presented to the Government, and Mr. Nutting was made president and director, which positions he held until the corporation was merged with the Foster Wheeler Corp. in 1930.

Californians Protest Changes in Tax Statute

LOS ANGELES, Calif., Jan. 20.—In an effort to prevent further instability in the oil industry of California, and maintain the conditions that now forecast prosperity for its workers, land and royalty owners, allied and interdependent business, a resolution was adopted in Los Angeles, by joint meeting of representatiyes of every state-wide oil organization, protesting against proposals now being considered in Washington that would unnecessarily add to the industry's tax burden.

In addition to the resolution adopted, the following telegram was sent to California senators and congressmen, signed by the Independent Oil Producers Agency, Independent Petroleum Association of California, Oil Producers Sales Agency of California, California Oil and Gas Association and the Pacific Coast Petroleum Industries Committee:

"We urge that you use your best efforts to defeat proposals now before Ways and Means Committee to eliminate or reduce allowances to natural resource industries for depletion and depreciation. Tax statutes covering oil production are known and understood and further instability will be created by proposed changes which will seriously affect all labor interests, landowners, allied and interdependent industries.

"Proposed changes will cause a repetition of the chaos which existed in administering these provisions in the Revenue Acts of 1913 and 1916. We are mailing formal resolution passed today at joint meeting."

The resolution, which has also been forwarded to Washington, will be brought to the attention of all chambers of commerce in the oil-producing districts, and to interallied business interests.

NEWS FOR PETROLEUM REFINERS

Large Creditors Agree to New Sunset Pacific Setup

LOS ANGELES, Calif., Jan. 22.—Holders of the $2,200,000 debentures of the Sunset Pacific Oil Co. (formerly Julian Petroleum Corp.) are informed in a letter that some of the largest creditors of the concern, now in receivership, have agreed to a plan of reorganization recommended by a committee charged with formulation of such a plan. It is assumed that the Associated Oil Co., owner of about $10,000,000 of first mortgage bonds, is among those who approve the proposed plan.

"If the operations of the company, after reorganization, are as successful as they have been during the receivership of the past two years," the committee states, "the company should be well able to carry all fixed charges, including interest and sinking fund requirements of the new bonds, which will mean the ultimate preservation of the business for the present debenture holders, unsecured creditors and stockholders. There is no reason to suppose that future operations cannot be at least as successful as during the period of the receivership."

The receiver, Frank H. Rolapp, recently reported operating profits over a period of 22 months to November 30, last, at the rate of about $600,000 annually.

Assets of the Julian Petroleum Corp. were transferred to the Sunset Pacific Oil Co. on April 15, 1929, after which a merger with the California Eastern Petroleum Corp. was effected. After sifting the claims of creditors and holders of stock, which was overissued in the neighborhood of 5,000,000 shares, Sunset Pacific debentures and Class B stock were issued to unsecured creditors, and Class A stock to Julian stockholders.

About 30,000 Julian stockholders now hold approximately 3,837,000 Class A shares. Unsecured creditors hold about 285,000 shares of Class B and the $2,200,000 of 6½ per cent debentures.

COMPLETING WAINWRIGHT UNIT

CHATHAM, Ontario, Jan. 22.—Gold Standard Oils, Ltd. is completing the first 400-bbl. unit of a refining plant at Wainwright, specially designed to utilize the heavy asphaltic crudes of the Wainwright Field. Systematic development of the field in east-central Alberta is being undertaken by Gold Standard Oils. Officers of the company are: President, W. H. Wright; secretary, J. J. Gray, Toronto; directors, Mr. Underhill, Barrie, Ontario; D. W. Beaubier, Brandon, Manitoba; M. R. Cowell, Toronto, and C. L. Freeman, Edmonton.

NATIONAL OIL BURNER SHOW

With a multitude of new names represented, both from the lists of oil burner and accessory manufacturers, the eleventh national oil burner show to be held in Philadelphia, March 5 to 9, at the Commercial Museum had a total space reservation of 94 booths as of January 10, according to Harry F. Tapp, executive secretary of the American Oil Burner Association, following a meeting of the board of directors of the American Oil Burner Association in Philadelphia.

LION ADVERTISING

Lion Oil Refining Co. announces that its appropriation for newspaper advertising for 1934 will be the largest it has ever made. About 50 papers will be used. The list includes the metropolitan papers in Arkansas, Mississippi, Tennessee, Alabama and Louisiana, also small dailies and weeklies in towns where the company has bulk plants and retail outlets.

PHOENIX MOVING PLANT

The Marathon Oil Co.'s 2,500-bbl. skimming plant at Del Rio, which formerly operated on crude piped from the Yates Field, Pecos County, through the Illinois Pipe Line Co.'s trunk line to its tank farm just east of that city, has been dismantled by the Phoenix Refining Co. which recently purchased same, and is being moved to San Antonio where it will be set up to operate on crude produced in the Somerset Field just south of that city.

The Phoenix Refining Co.'s small plant at Eagleford, a short distance west of Dallas, was damaged by fire on January 20. The company is now clearing away the damaged parts preparatory to rebuilding the plant.

Believes Tanker Code Not Likely to Advance Prices

Referring to published predictions of retail gasoline and fuel oil prices being increased because of the proposed tanker code providing for larger crews and other advances in operating costs including the possible creation of a tanker pool for the benefit of idle American tankers during a period of slackness such as has prevailed since 1931, an official of one of the oil transportation companies points out that an increase of 5 cents per barrel for transporting gasoline from the U. S. Gulf to New York and other eastern seaboard points would warrant an increase of only .00119 cent per gallon to the consumer.

"Over a period of eight years prior to 1931," he added, "the average transportation rate from the various shipping points in the Gulf was about 29 cents per barrel. Should the present coastwise rate of 20 cents per barrel for gasoline and other clean products be increased to 29 cents, a rate at which the American tanker owner can just about cover his investment, not more than 1.3 cents per gallon increase to the consumer would be warranted."

NEW MARKETING COMPANY

WINSTON-SALEM, N. C., Jan. 20.—Wachovia Oil Co., with principal office at Winston-Salem, has filed a certificate of incorporation in the office of Stacey W. Wade, secretary of state, at Raleigh, N. C., to buy and sell gasoline and all other petroleum products. Authorized capital stock $100,000. Incorporators are: R. E. Lasater, George L. Irvin, Jr., and Roby E. Taylor of Winston-Salem.

REDUCE STATION HOURS

Filling stations in Kansas City operated by the larger companies will be open hereafter from 7 o'clock in the morning until 9 o'clock at night on week days and from 8 o'clock Sunday morning until 8 o'clock Sunday night.

MORE OIL TO JAPAN

The depreciation of dollar exchange has served to substantially improve the position of American lubricating oils on the Japanese market, according to a report from Consul General Arthur Garrels, Tokyo.

QUEBEC GASOLINE AMENDMENT

QUEBEC, Canada, Jan. 20.—An amendment to the Gasoline Act was introduced in the Quebec legislature this week by Hon. R. F. Stockwell, provincial treasurer. Under the amendment, coal oil, when sold mixed with gasoline, will be made subject to the gasoline tax. Dealers have, it is stated, in some cases mixed coal oil with gasoline in order to evade part of the tax, coal oil heretofore not being taxable.

No Escape From Closing of Stations Mr. Jackson Says

CHICAGO, Jan. 22.—Commenting on the announcement of the Standard Oil Co. (Indiana) that it will discontinue operation of 800 service stations in Indiana by the end of January because the State's chain store tax amounts to more than the stations can earn, Allan Jackson, vice president in charge of sales, said that one result probably would be a serious loss in wages and employment in Indiana filling stations, which the company regrets, but that it is impossible to operate on the old basis and pay the tax.

The tax, a graduated one, was increased from a top of $25 to a top of $150 per unit. The stations chiefly affected are those at present leased from individual owners and operated by the company's agents. Leases and employment agreements with the agents are being canceled.

Standard also has closed some of its own stations and would close more if the company could dispose of the properties. Even though payment of the tax will cause the business to be conducted at a loss, the loss will be less than it would be if the stations were closed and the properties allowed to deteriorate.

Mr. Jackson asserted there is no other way for the principal suppliers to escape confiscation of all the returns on their marketing, and more. By making the tax exorbitant, the State has forced measures which will result in little return at all being obtained from the oil companies, he said.

"It was obvious from the beginning," Mr. Jackson pointed out, "that application of the chain store tax to the oil companies was unjustified. Filling stations are not and never have been chain stores of the type which such legislation ordinarily aims to affect. Individual operators of filling stations have almost unanimously supported the contentions of the larger companies against the chain store tax."

It has been estimated that Standard's gasoline sales in Indiana comprised between 20 and 25 per cent of the total gallonage of the State. Unofficial estimates of the annual gallonage of the 12 leading marketers follow:

Company—	Gallons
Standard	97,913,000
Indian Refining	30,304,000
Shell	25,838,000
Sinclair	23,792,000
Gulf Refining	14,640,000
Phillips	12,156,000
Mid-Continent Pet.	11,064,000
Indiana Farm Bureau	9,452,000
Cities Service	8,198,000
Pure Oil	7,714,000
Lubrite	7,620,000
Texas Co.	5,969,000

PLANS STILL OPEN

MUSKEGON, Mich., Jan. 20.—Plans for three new refineries were announced but construction has not yet been started as the year closed. B. J. Skinner, of Grand Rapids, has applied for a permit to lay a new pipe line from the Porter Pool to Alma, a distance of about 10 miles, for a 1,000-bbl. proposed skimming plant. E. G. Guy, former superintendent of the Old Dutch and Roosevelt refineries, of Muskegon and Mount Pleasant, proposes to erect a small plant at St. Louis, Mich., near the Porter Pool, while Detroit interests were reported considering a refinery to be erected at Clare, near the Vernon Pool.

MOVE MODERN PLANT

The Locke Refining Co. has purchased the Modern Refining Co., plant at Gladewater, will dismantle it and move it alongside of No. 1 plant in Gladewater.

HALF OF GASOLINE CRACKED

CHICAGO, Jan. 20.—Half the gasoline produced in this country today is made by cracking, Dr. Jacque C. Morrell, of Universal Oil Products Co., stated in a radio address on January 17.

Doctor Morrell spoke over Station WENR in Chicago. His subject was, "Sources of Modern Motor Fuels." The talk was one of a series sponsored by the Adult Education Council of Chicago and delivered under the auspices of the American Chemical Society.

Doctor Morrell based his statement, that the volume of cracked gasoline in this country has reached nearly 50 per cent of the total, on the Bureau of Mines statement for November, which showed 14,798,000 bbls. of straightrun gasoline were produced in that month, as against 15,393,000 bbls. of cracked gasoline.

ALLEGE PATENT INFRINGEMENT

The Standard Oil Co. (Indiana) has filed suit against Winkler-Koch Engineering Co. and the Globe Oil & Refining Co. alleging infringement of patents. The three patents alleged to have been infringed are the Lewis and Cooke patent, No. 1,392,594; the Shaeffer and Brown patent, No. 1,851,526, and the Snow and Sullivan patent, No. 1,918,991. The Snow and Sullivan patent, most recent of the three, and in suit for the first time, bears on reforming operations.

Filed in the U. S. District Court for the District of Kansas, Wichita Division, at Wichita, the suit asks for injunctive relief, for an accounting of profits realized from construction and operation of equipment and methods alleged to infringe, and for damages. Both defendants are corporations organized in Kansas.

HEAD OKLAHOMA MARKETERS

C. F. Sloane of the Sloane-Forsberg Oil Co. of Oklahoma City, was elected president and two new directors were added to the personnel of the Oklahoma Petroleum Marketers Association at its nineteenth annual convention.

C. C. Henry of Altus was elected vice president and J. Paul Hughes of Tulsa was re-elected secretary-treasurer. Sloane succeeds W. D. Chappell of the Chappell Oil Co. of Enid.

Charles W. Scott of Black Gold Refining and R. G. Cunningham of the Cunningham Oil of Miama are the two new directors. Other directors are: W. A. Riley of Barnsdall, Tulsa; Sloane, T. H. Milby of Oklahoma City; C. C. Henry, L. B. Abbott of the Crescent Oil of Durant; R. H. Mozier of Tide Water Oil of Tulsa; W. D. Chappell, Paul Long of Ponca City, and J. Paul Hughes of the Marathon Oil of Tulsa.

START NEW YORK PLANT SOON

BOLIVAR, N. Y., Jan. 20.—A. L. Shaner has been elected president of the Allegany Refiners, Inc. Other officers chosen at the annual meeting here are J. M. Karl, first vice president; D. V. McCarthy, second vice president, and N. S. Sullivan, secretary and treasurer. The company was organized nearly two years ago to build and operate a crude oil refinery here. The plant, costing more than $200,000, is nearing completion and will be ready for operation late this month. The refinery will run crude produced in southern New York.

PHILLIPS SALES MEETING

Approximately 450 members of the Phillips Petroleum sales staff met in Wichita, Kans., in the past week to learn of the company's plan to distribute $15,000 as prize money among its employes for new business.

Will Your New Refinery Tubes Meet Timken Standards ?

The complete range of Timken refinery tubes covers every type of refinery application. Their individual quality characteristics represent definite savings in material and time.

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NATURAL GASOLINE MANUFACTURE

Utility Plants to Have Same Hours and Wages

WASHINGTON, D. C., Jan. 19.—Natural gasoline plants operated by utility companies, for the purpose of stripping gasoline from the gas run through pipe lines to be distributed among cities for household and industrial use, will operate on a schedule of wages and hours for its employes identical with those outlined in the petroleum code.

Leighton Peebles, deputy administrator of the N.R.A., who had charge of the hearing held here in the past week on the proposed code for the natural gas industry, led to this understanding in as much as he said that natural gasoline plants are not included in the natural gas code as now being considered, but would come under the code for the petroleum industry. Mr. Peebles and other government representatives who conducted the hearing on the proposed code for the natural gas industry are considering the code and preparing it for presentation to the administrator.

Minimum wage scales as provided for in the proposed natural gas code were lower and working hours higher than those in the petroleum industry code and natural gasoline plants, owned by natural gas companies, should have the same wage scales and working hours as such plants owned by oil companies. The same contention was made regarding minimum wage scales and working hours in drilling gas wells, as much drilling for gas was done in fields where oil companies were operating under the code for the petroleum industry, which code has a higher minimum wage scale and shorter working hours than those in the proposed natural gas code. It is believed here working hours and minimum wage scales for drilling in the natural gas code, when approved, will be similar to those in the petroleum code for the same type of work.

Optimistic Reports on Use of Butane as Fuel

Optimistic reports are emanating from the engineers of the Southern Pacific Railroad in regard to experiments being conducted on a commercial scale in which butane is used as a fuel for driving light trains. The product has proved to be superior to ordinary gasoline and heavier fuels because of its ability to cause the motor to accelerate easily is ideal for short runs. Success of the trials and the general adoption of butane as a railroad fuel for interurban cars would aid greatly in utilizing to greatest advantage the large production of the material at natural gasoline plants and refineries.

The experiments, conducted in two new-type motor engines, have been in progress for approximately nine months. The engines formerly burned distillate.

The motive power of the engines is electricity developed through large generators operated by two six-cylinder Hall-Scott motors which use the butane.

At a cost of approximately $5,000 each the two engines were remodeled to burn butane. No. 8, the first one changed, has been sent north for test runs between Oakland and Sacramento.

The two cars are the only ones of their type in the United States. For greatest efficiency the compression ratio of the motors was stepped up some.

The engineers, as yet, have been unable to fully determine the potential power, since in the experiments they have been unable to advance the motors more than half-throttle for fear of burning out the generators. Despite the fact that the motors are pulling the motor car, which is equipped to carry 56 passengers, a standard, old-style heavy Pullman, and a baggage car weighing approximately 170 tons, a speed of 60 miles per hour at half-throttle has been attained.

When using gasoline or distillate it was necessary to change the crankcase oil every 800 miles, or oftener. Using butane, trainmen emphasize, it will not be necessary to change the crankcase oil under 10,000 miles, as the fuel burns completely and does not dilute the lubricant.

With the two motors at half-speed, and carrying the full usual load, the trains have been using about a gallon of butane per mile. Butane is being offered on the California market now for approximately 3 cents a gallon when purchased in 1,000-gallon lots.

Eliminate Stray Electric Currents While Loading Natural Gasoline at Plant

The hazards of static electricity are generally known and recognized by natural gasoline plant men and the oil industry in general, but because of the greater volatility of gasoline unusual hazards exist in its handling, especially in loading it into and transporting it by tank car or tank truck.

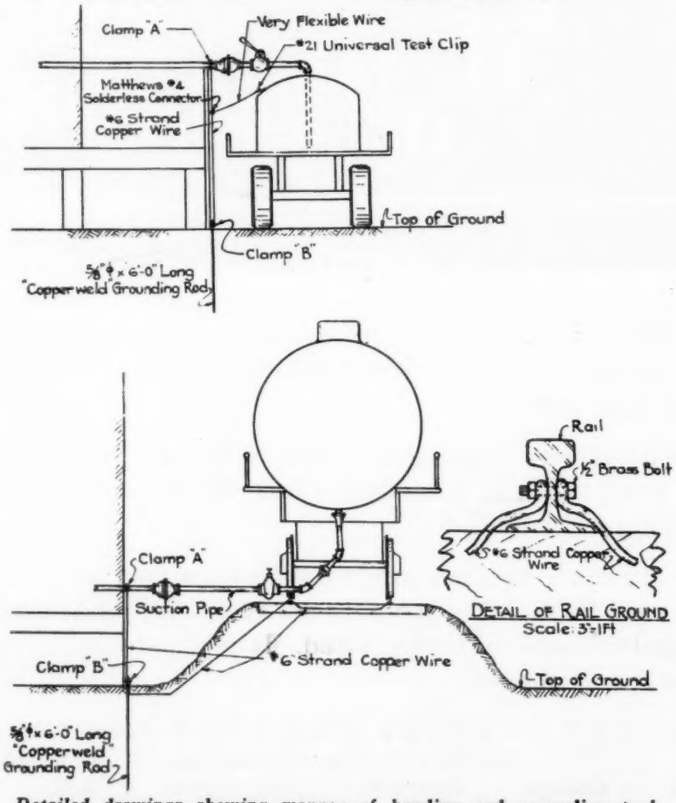
In addition to the general knowledge of the subject as it has been available in published data, the Magnolia Petroleum Co. has made a study of practical means of grounding to insure absolute safety.

The work was done under the supervision of A. J. Balcom, superintendent of telegraph, at the company's Beaumont, Tex., refinery. Subsequent articles will appear on this page as a contribution of the Magnolia Petroleum Co., which will show means found by that company of grounding various pieces of electrical equipment giving off stray currents at points of danger in the plant. These may be equally well applied in natural gasoline plants and refineries because of the similarity of the problems involved.

In explaining the drawing shown here, Mr. Balcom said:

"The diagram shows the connections for grounding and bonding rails, tank cars and unloading lines. By positively grounding the rails it is found that the use of insulated joints between the spur track and main line are eliminated as stray currents originating from the main line are led off to a ground absolutely harmless. The diagram also shows the use of grounding connections and protection in truck loading and great care should be taken in making these connections in grounding the gasoline tank before the gasoline loading line is placed in the truck where static electricity has been known to exist to some extent in empty gasoline tanks. This ground connection should be made previous to making connection with the filling line as this will lead off the discharge of the static electricity to the ground. It should also be left connected until the filling lines are disconnected and the truck ready to move."

Mr. Balcom welcomes a discussion of the suggestions made here.



Detailed drawings showing manner of bonding and grounding tank trucks and tank cars to avoid chance of vapor ignition by static electricity

Compile Table Showing Weight of Materials

In construction work around the plant, in making room for materials to be stored and in the design of scaffolding, platforms, floors, etc., the engineer is called upon to make quick calculations in regard to weights of materials involved and in the interest of safety, the petroluem safety council has compiled the accompanying summary of unit weights. Those materials were picked from a large number which are most commonly found at natural gasoline plants and refineries.

WEIGHTS OF DRY MATERIALS

Material—	Weight per cu. ft. in lbs.
Aluminum, cast-hammered	165
Asbestos	47
Babbitt metal	456
Brass, cast-rolled	534
Brick, common	112
Brick, pressed	135
Brick, fire	145
Bronze, 7.9 to 14% tin	509
Cement, portland	94
Clay	137
Coal, piled, anthracite	47–58
Coal, piled, bituminous	40–54
Coke	22–27
Concrete, plain	145
Concrete, reinforced	150
Copper, cast-rolled	556
Gravel, dry, loose	90–105
Gravel, dry, packed	100–115
Gravel, wet	110
Ice	55–57
Iron, cast pig	450
Iron, wrought	485
Lead	710
Leather	59
Lime, quick, in bulk	55
Limestone, piled	95
Salt, granulated, piled	48
Sand, dry, loose	90–105
Sand, dry, packed	100–115
Slate	175
Snow, freshly fallen	8
Steel	489
Stone, crushed	100
Sulphur	125
Wood, cedar, white—red	22
Wood, cypress	30
Wood, oak, white	46
Wood, pine, white	26
Wood, yellow pine, long leaf	44
Wood, redwood, California	26

START MICHIGAN PLANT

MUSKEGON, Mich., Jan. 20.—Construction of a new 5,000-gallon natural gasoline plant to run about 2,500,000 feet of casinghead gas daily from producing oil wells in the Chippewa-Greendale Pool, original oil area near Mount Pleasant, was started during the last week of 1933 by Otha H. Grimes, of Tulsa.

Mr. Grimes has contracted to take casinghead gas from several hundred wells in this area including wells of the Pure Oil Co., largest developer in Central Michigan. The plant is to be ready for operation in about 90 days.

OIL SHAREHOLDERS ASSOCIATION

CALGARY, Alberta, Jan. 20.—Officers of the newly-organized Oil & Gas Shareholders Protective Association were elected at a meeting recently held at Calgary, as follows: President, Albert E. Bingham; first vice president, W. T. Cutting; second vice president, Mrs. J. A. Hazelwood. Mr. Bingham was formerly with the Union Oil Co. field office at Santa Fe Springs, and also at its gasoline absorption plant at Huntington Beach.

ANOTHER MICHIGAN PLANT

The Community Natural Gas Co., headed by J. P. McCloskey and Lee S. Miller, announce plans for another new natural gasoline plant in Central Michigan, the residue gas to be piped to five nearby towns including Alma, St. Louis, Ithaca, Breckenridge and Wheeler in which they have obtained franchises to sell gas. The Bell Gasoline Co., of Muskegon, has operated a small plant in Chippewa-Greendale Field for two years.

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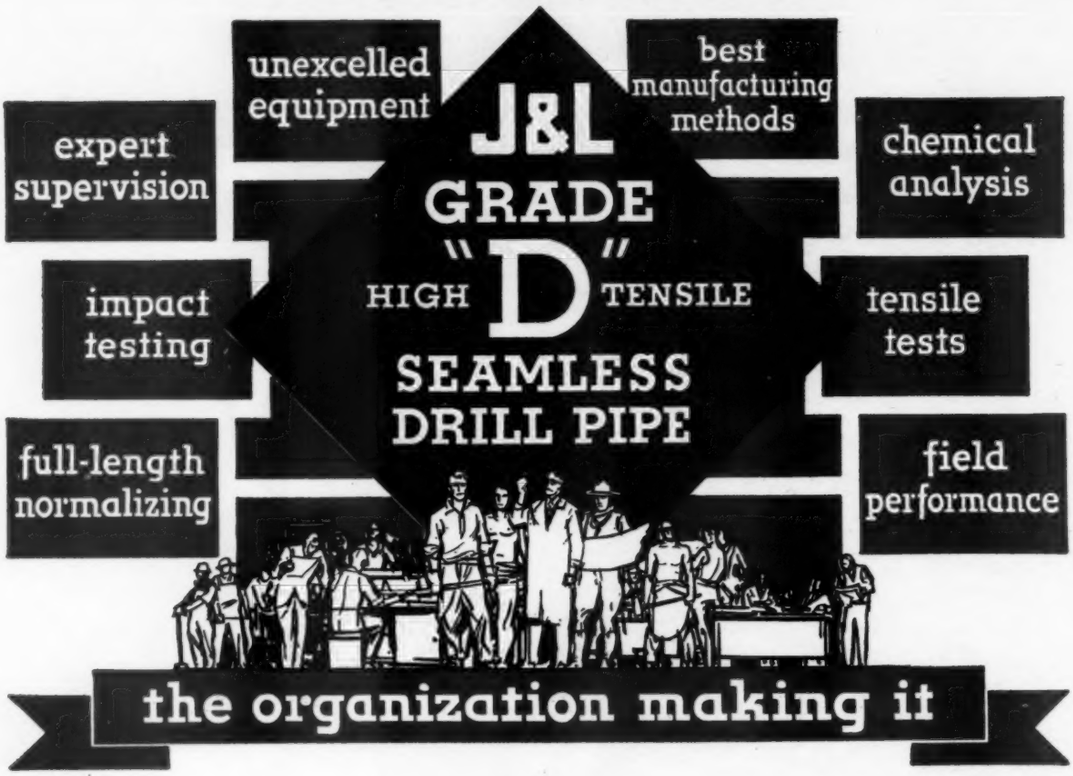

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Big Decline in Drilling in East Texas in 1933 Was Not Offset by Increased Work Elsewhere

By JAMES McINTYRE

The number of wells completed in the United States in 1933 was less than half of the number completed in 1929, and 2,709 fewer than the completions in 1932. Last year's record includes 8,068 oil wells, 932 gas wells and 3,312 dry holes or a total of 12,312 completed wells. The percentage of oil wells was 65.5, gas wells 7.6 and dry holes 26.9.

The greatest decline in operations occurred in the East Texas Field in which 5,760 wells were completed in 1932 and 2,462 wells in 1933, a decline of 3,293 which was only partly offset by increased work in a number of other fields. The increases in completed work by fields were as follows: Eastern Fields 90, Michigan 122, West Texas 75, Texas Panhandle 32, Texas Gulf Coast 667, Louisiana Gulf Coast 36, Southwest Texas 51, North Louisiana 16, Montana 13, Wyoming 1, Colorado 5, Utah 3, California 55, total 1,166. The declines were central Ohio 28, Lima 1, Indiana 20, Kentucky-Tennessee 309, Mississippi 11, Illinois 33, Kansas 33, Oklahoma 37, North Central Texas 51, East Central Texas 39, East Texas 3,293, East Texas gas area 16, Arkansas 2, New Mexico 2, total 3,875.

Six New Pools in Oklahoma

Six new pools were opened in Oklahoma in 1933, the Crescent Pool in Logan County; Sasakwa Townsite Pool and Keokuk Falls Pool in Seminole County; West Chandler in Lincoln County; Olive Pool in Creek County and Fitts Pool in Pontotoc County. In addition to these there were a number of extensions to known fields, like the Dutcher sand discovery in a new spot in the Bixby, Tulsa County, area; new sands of big productiveness in the Naval Reserve Field in Osage County and a discovery in the Fairfax area in the same county, which will make the next Osage lease sale interesting, the development of the South St. Louis Pool in Pottawatomie which brought that field back from a declining producing pool and increased its daily production about 10,000 bbls. a day in three months. None of the new pools opened in 1933 gave promise of being large in extent. The Crescent Pool with wells ranging from 5,000 bbls. downwards in initial production appears to be a narrow strip of Wilcox sand pay running north and south.

Four New Pools in Kansas

Four pools were opened in Kansas, the Gates Pool in Stafford County, Brandenstein Pool and Thode Pool, both in Rice County, and the McCann Pool in western Butler County. Discoveries of 1932 were developed carefully as Kansas operators co-operated with the Public Service Commission of the State in trying to keep the supply of crude down to demand. While a great deal of seismograph work was done in the State, and there was much blocking of acreage in the western counties, companies delayed any general wildcatting campaign they may have had in mind. Most of the work done in the year was in McPherson, Harvey, Greenwood and Rice Counties with the greatest volume of new production being uncovered in the pools in McPherson, Harvey and Rice.

Great Year in Michigan

Discoveries and development work in Michigan in the past year led State Geologist Smith to say that Michigan has "the largest known undeveloped oil and gas area in the United States" and he predicted a boom in developments this year surpassing the busy year just closed, during which 190 wells were completed in Midland County of which 171 were oil wells, with a total initial production of 127,332 bbls., an average of 745 bbls. per well and 51 wells in Isabella County of which 31 were oil wells averaging 647 bbls. per well in first day crude oil output. Michigan at the close of the year had 11 oil pools and 5 gas pools with an aggregate open flow capacity of 200,000,000 feet. The State had a potential production of 100,000 bbls. per day.

A 20,000 bbl. well was completed in the Midland district and a record gas well for that State, which started at 27,500,000 feet, was drilled. Oil or gas is produced in 11 counties of the State.

The big discovery and development of the year was the Porter Pool in Midland County. It was in this pool that the gushers which surprised the oil world by their size were brought in. The Porter Pool was opened by the Michigan Pacific Oil & Gas Co.'s No. 2 Otway, in Section 22-13n-12, with a 3,300-bbl. production from the Dundee sand at 3,526 feet. The Pure Oil Co. owned the 20,000-bbl. No. 2 Hoyt in Section 17-13-12. It was one of the largest producers ever completed east of the Mississippi River, and claim may even be made that it topped all oil wells east of the river in flush output.

Gulf Coast's Big Year

The Gulf Coast Field in South Texas and South Louisiana enjoyed its busiest year in 1933. The discovery of Conroe and some lesser pools in 1932 attracted more attention to the Gulf Coast area than it had ever received, and while the drilling of wells was held down a number of discoveries were made out of the wildcat campaign staged.

A total of 689 oil wells and 7 gas wells were drilled in the Conroe Pool in Montgomery County, and the field was defined on three sides. Over 13,000 acres were proved productive and it is believed the field will reach 17,800 acres in size. It is expected that before the end of spring this year Conroe will be drilled up with a total of 750 wells.

Greta, Tomball and Louise were discoveries of 1933 and these, together with Coleto in Victoria County, Ace in Polk County and Cleveland, or Tarkington Prairie in Liberty County, comprised the total of new pools opened in the year.

Of the new pools Greta was the outstanding one. It is in Refugio County in the lower coastal area. One hundred wells were drilled, the rule observed having been one well to each 20 acres. Most of the production comes from a 4,400-foot pay. Originally owned by independent operators, the Greta Pool came into the hands of the larger companies by purchases and trades.

Tomball, which started with a 2,000-bbl. well was given a sensational leasing play, but up to the close of the year it had proved a disappointment. It was first regarded as "another Conroe." Thirty-two wells were drilled of which 18 were oil wells, 8 gassers and 6 dry holes.

The Cleveland Pool, discovered in December by the Gulf Production Co. with a 1,300-bbl. well at 5,716-24 feet, was looked upon as a very important producing area. The Gulf company owns 18,000 acres and will develop the field conservatively.

The Iowa Field in Calcasieu and Jef-

(Continued on Page 98)

SUMMARY OF COMPLETED WELLS IN ALL THE FIELDS OF THE UNITED STATES IN 1933 AND 1932

		Comp.	Init. prod. (bbls.)	Dry holes	Gas wells	Oil wells	Av. init. prod. (bbls.)
Eastern	1933	1,650	10,305	158	284	1,208	8.6
	1932	1,560	5,906	203	270	1,087	5.5
Central Ohio	1933	378	1,643	102	202	74	22.2
	1932	406	2,118	124	185	97	21.8
Lima	1933	123	2,344	30	42	51	46.0
	1932	124	1,678	24	51	49	34.2
Indiana	1933	170	1,672	63	55	52	32.2
	1932	190	2,516	81	55	54	46.6
Kentucky-Tennessee	1933	186	4,485	93	10	83	54.1
	1932	495	16,026	158	58	279	57.5
Michigan	1933	296	150,086	67	11	218	688.4
	1932	174	73,120	50	11	113	647.3
Mississippi	1933	42	150	25	16	1	150.0
	1932	53	500	14	38	1	500.0
Alabama	1933	3	0	3	0	0	....
	1932	3	0	3	0	0	....
Illinois	1933	14	24	9	1	4	6.0
	1932	47	81	29	6	12	6.8
Kansas	1933	539	193,736	134	16	389	498.0
	1932	572	193,139	188	21	363	532.6
Oklahoma	1933	1,093	307,323	353	72	668	460.1
	1932	1,130	647,316	381	106	643	1,006.7
North Central Texas	1933	1,163	44,184	608	31	524	84.3
	1932	1,214	29,661	670	52	492	60.3
East Central Texas	1933	105	1,968	83	0	22	89.5
	1932	144	8,272	75	3	66	125.3
East Texas	1933	2,467	157,078	58	4	2,405	65.3
	1932	5,760	389,100	118	6	5,636	69.0
East Texas gas area	1933	25	65	22	0	3	21.7
	1932	41	10	33	7	1	10.0
West Texas	1933	298	67,091	58	3	237	283.1
	1932	223	34,298	67	4	152	225.7
Texas Panhandle	1933	191	40,953	15	24	152	269.4
	1932	159	48,152	22	27	110	437.7
Southwest Texas	1933	951	161,853	527	52	372	435.1
	1932	900	121,836	471	49	380	520.6
Gulf Coast—Texas	1933	1,359	1,342,716	303	26	1,030	1,303.6
	1932	692	324,942	268	19	405	802.3
Gulf Coast—La.	1933	225	77,879	123	2	100	778.8
	1932	189	90,516	94	1	94	962.9
North Louisiana	1933	343	19,795	193	48	102	194.1
	1932	327	37,397	177	38	112	333.9
Arkansas	1933	48	477	42	0	6	79.5
	1932	50	712	45	1	4	178.0
Montana	1933	75	4,289	18	12	45	95.3
	1932	62	9,057	26	6	30	301 9
Wyoming	1933	62	2,104	24	14	24	87.7
	1932	61	3,392	24	6	31	109 4
Colorado	1933	30	1,239	21	6	3	413 0
	1932	25	117	18	3	4	29 2
New Mexico	1933	61	148,936	15	1	45	3,309.7
	1932	63	171,518	15	4	44	3,898.1
Utah	1933	4	3	2	0	2	1.5
	1932	1	35	0	0	1	35.0
California	1933	411	274,104	163	0	248	1,105.2
	1932	356	156,823	172	0	184	852.3
Total	1933	12,312	3,016,502	3,312	932	8,068	*373.9
Total	1932	15,021	2,368,238	3,550	1,027	10,444	*226.8
Difference		2,709	648,264	238	95	2,376	....
Record for Past 10 Years							
Total	1933	12,312	3,016,502	3,312	932	8,068	*373.9
Total	1932	15,021	2,368,238	3,550	1,027	10,444	*226.8
Total	1931	12,432	5,490,609	3,659	1,985	6,788	808.8
Total	1930	21,240	9,955,835	6,734	2,866	11,640	855.3
Total	1929	26,356	6,170,311	7,914	2,870	15,572	396.3
Total	1928	22,331	8,365,778	7,078	2,727	12,526	667.9
Total	1927	24,143	4,918,197	7,210	2,491	14,442	340.4
Total	1926	29,319	3,683,787	7,965	2,341	19,013	193.7
Total	1925	25,623	4,300,356	6,735	2,330	16,558	260.0
Total	1924	21,894	3,255,491	4,950	2,173	14,771	221.0

*Initial production of wells in East Texas and Van Pool in East Central Texas represent only short time flow ranging from a few minutes to one hour, in most cases, therefore the average initial production per well in 1932 and 1933 does not have the significance such averages had in previous years when based on full 24-hour initial production. Initial production of wells in the Oklahoma City, Oklahoma, Field represent short time flow, generally of four hours' duration.

Curb Failed to Keep Crude Oil Production Down in 1933 and It Rose to 901,273,323 Barrels

By JAMES McINTYRE

The combined efforts of the vast majority of oil producers, the U. S. Government and the public service commissions of states, failed to keep production down in 1933 to a point where the general industry could make money, and the result was that the country produced 901,273,323 bbls. of oil, or 115,968,920 bbls. more than in 1932. The production increases and declines are set forth in the following tables:

INCREASED PRODUCTION IN 1933

	Bbls.
Texas	87,429,693
Oklahoma	28,869,215
Kansas	5,966,562
Louisiana	3,161,766
Pennsylvania	282,000
Montana	37,901
New Mexico	1,456,594
Tennessee	2,000
Michigan	1,029,000
Total increase	128,234,731

DECREASED PRODUCTION IN 1933

California	5,002,374
Arkansas	1,080,235
Wyoming	1,899,019
Illinois	549,000
Ohio	310,000
Kentucky	1,701,000
West Virginia	80,000
New York	1,371,000
Colorado	199,183
Indiana	74,000
Total decrease	12,265,811
Net increase	115,968,920

The big increase in crude oil output did not come from new pools. No great pools were opened in 1933—that is, none of the pools opened in 1933 developed enough production in the course of the year to affect the general situation.

Three fields in the country were responsible for more than the net increase. East Texas produced 202,869,340 bbls. in 1933 and 121,944,399 bbls. in 1932, indicating an increase in 1933 of 80,924,941 bbls. Oklahoma City produced 66,984,570 bbls. last year and 33,397,537 bbls. in 1932, an increase last year of 33,587,033 bbls. Conroe, Texas, discovered in 1932, produced 21,286,672 bbls. in 1933 and only 2,499,645 in 1932, an increase last year of 18,787,027 bbls. The three fields showed a combined increase of 133,299,001 bbls. or 17,330,081 bbls. more than the net increase for the whole country. And that tells the story, in part, of why the oil industry floundered through the year with little profit to any, and no profit to many, engaged in it. The refining and marketing price cutter aided his bootlegging production brother in keeping the industry back, and until recently there was no way to stop him.

COMPARATIVE PRODUCTION IN 1933—FOREIGN COUNTRIES AND 20 AMERICAN FIELDS

(Garfias' Estimates)

	Bbls.
Russia	150,000,000
Venezuela	118,000,000
Rumania	51,000,000
Persia	48,000,000
Dutch East Indies	38,000,000
Mexico	33,000,000
Argentina	14,000,000
Peru	14,000,000
Colombia	13,500,000
Trinidad	9,500,000
British India	8,500,000
Poland	3,800,000
Sakhalin	2,900,000
Japan	2,300,000
Sarawak	2,300,000
Egypt	1,600,000
Germany	1,600,000
Ecuador	1,600,000
Canada	1,100,000
Iraq	1,100,000
Others	1,100,000
Total foreign fields	516,900,000

(Gross Production)

	Bbls.
East Texas	202,869,340
Oklahoma City	66,984,570
Seminole, Okla.	32,177,052
Long Beach, Calif.	24,825,049
Kettleman Hills, Calif.	21,624,020
Conroe, Tex.	21,286,904
Yates, Tex.	20,667,846
Santa Fe Springs, Calif.	18,268,904
Midway-Sunset, Calif.	17,540,122
Van, Tex.	17,271,227
Ventura Avenue, Calif.	12,573,647
McPherson, Kans.	11,763,473
Lea County, N. Mex.	11,210,908
Pampa, Tex.	10,386,789
Bradford, Pa.	10,125,458
Smackover, Ark.	8,897,531
Barbers Hill, Tex.	8,127,939
Hendrick, Tex.	7,497,934
Big Lake, Tex.	6,851,980
Mirando, Tex.	7,400,444
Total	538,351,137

Hot Oil Production

The Oil and Gas Journal has tried to account for all oil produced in East Texas. We cannot say that we have succeeded in accounting for all the "hot" oil. The volume of illegally produced oil from the field has been enormous.

One of the large oil companies which has endeavored to account for all the oil produced in East Texas places the recorded total production at 399,073,721 bbls. and the illegally produced oil at 37,200,898 bbls., making a total of oil produced 436,274,619 bbls. or 3,703,846 bbls. more "hot" oil than The Oil and Gas Journal has accounted for. A high official of one of the largest oil companies with Houston headquarters, asked to place an estimate on the "hot" oil production of East Texas, threw up both hands and said "I can only guess, and my guess is no better than yours."

Most of the production figures on East Texas have been based on the recorded production of the field and do not take into account the "hot" oil produced and marketed.

Oklahoma City's Big Year

Oklahoma City, the production of which in 1932 was 33,397,537 bbls., produced 66,984,570 bbls. in 1933. This field also has been a harvest for fly-by-night crude oil marketers and price cutting producers, but after the passage of the law which gave the State Corporation Commission more authority than it previously had, and carried penalties for law violations, the harvest days were over. The state Senate held an investigation of the hot oil situation in Oklahoma City early in the year and uncovered a most unsavory mess.

Conroe Must Be Reckoned With

The Conroe Pool in Montgomery County, Texas, is regarded as having a recoverable production of 500,000,000 bbls. It has been defined on three sides but has not been overdrilled and will be carefully produced. It may exceed its 1933 output this year. It is quite capable of doing so if the demand for crude warrants it, as all the wells are being produced through chokes.

The great Seminole Field in Oklahoma was held in check all the year and produced a total of 32,177,052 bbls. as against 34,928,075 bbls. in 1932. This field is made up of 12 pools, close together, in Seminole and Pottawatomie Counties.

Only one of the big California fields showed an increase in production last year, that having been Huntington Beach which in 1932 produced 8,016,801 bbls. and in 1933, 13,100,489 bbls. Santa Fe Springs dropped off from 22,538,036 bbls. to 18,268,904 bbls.; Midway Sunset from 17,929,036 bbls. to 17,540,122 bbls.; Long Beach, from 27,435,553 bbls. to 24,825,049 bbls.

In the matter of all-time production Midway-Sunset, still leads American oil fields, but East Texas is creeping up on it year by year and there are few who do not believe that it will ultimately pass the old California field in total output. The following table gives the production in the order of their rank, of the oil fields of the United States that have produced more than 300,000,000 bbls.:

	Bbls.
Midway-Sunset, Calif.	747,202,618
Seminole, Okla.	528,357,864
Long Beach, Calif.	502,204,909
East Texas	432,570,773
Santa Fe Springs, Calif.	370,894,707
Smackover, Ark.	336,604,077
Coalinga, Calif.	325,748,488
Bradford, Pa.	319,220,101
Cushing-Shamrock, Okla.	314,756,699

At the end of 1932 the East Texas

Production in the United States, 1925 to 1933, Inclusive

	1925 (bbls.)	1926 (bbls.)	1927 (bbls.)	1928 (bbls.)	1929 (bbls.)	1930 (bbls.)	1931 (bbls.)	1932 (bbls.)	1933 (bbls.)	No. active wells Dec. 31, 1933	Dly. av. prod. per well (bbls.)
California	230,147,342	224,117,013	230,751,463	231,982,597	292,036,911	228,091,899	188,829,032	178,127,794	173,125,420	9,199	51.52
Oklahoma	173,270,063	177,651,198	276,022,024	247,500,851	252,229,474	216,114,591	175,703,848	149,487,234	178,356,449	57,853	8.45
Texas	144,783,451	172,545,278	220,030,512	255,354,357	298,713,694	292,392,102	328,608,575	314,378,759	401,808,452	48,210	22 83
Arkansas	78,407,138	58,729,606	40,411,375	32,137,934	25,443,570	20,114,782	15,626,407	12,529,870	11,449,635	2,888	10.86
Kansas	38,151,622	41,346,511	41,943,577	38,150,878	40,658,170	42,123,347	38,956,338	35,339,206	41,305,768	19,349	5.86
Wyoming	29,229,303	25,465,553	20,983,675	21,403,460	19,071,618	17,740,017	14,692,272	12,994,748	11,095,729	3,734	8.14
Louisiana	21,537,564	24,283,144	24,330,954	22,862,564	21,137,263	23,881,270	22,856,536	22,467,889	25,629,655	3,008	23.39
Illinois	7,862,000	7,770,500	6,873,000	6,475,000	6,356,500	5,651,000	4,717,000	4,801,000	4,252,000	14,000	.46
Pennsylvania	7,831,200	8,971,200	9,642,000	9,914,000	11,804,800	12,918,000	11,862,000	12,395,000	12,677,000	77,200	.44
Ohio	7,175,000	7,307,500	7,542,500	7,105,000	6,730,200	6,483,000	5,318,000	4,606,000	4,296,000	35,800	.33
Kentucky	6,770,000	6,297,200	6,590,000	7,350,000	7,821,400	7,462,000	6,490,000	6,322,000	4,621,000	14,900	.84
West Virginia	5,780,000	5,962,400	6,033,000	5,746,000	5,608,600	5,111,000	4,477,000	3,907,000	3,827,000	13,800	.76
Montana	4,122,653	7,744,605	5,171,883	3,998,549	3,827,067	3,203,808	2,847,201	2,320,155	2,358,056	1,453	4.45
New York	1,660,000	1,934,200	2,237,000	2,579,000	3,345,600	3,854,000	3,395,000	4,524,000	3,153,000	14,250	.61
Colorado	1,171,625	2,776,442	2,722,670	2,744,184	2,361,595	1,623,639	1,492,862	1,114,064	914,881	194	12.93
New Mexico	1,096,617	1,695,645	1,214,254	973,891	1,803,261	10,377,415	15,360,383	12,344,684	13,801,278	489	87.68
Indiana	828,000	785,200	852,500	1,054,000	905,800	990,000	831,000	806,000	732,000	2,275	.88
Tennessee	23,000	44,200	62,200	50,000	20,000	20,000	7,000	5,000	7,000	.....	.....
Michigan	.....	103,000	436,100	613,000	4,391,200	3,589,000	3,733,000	6,834,000	7,863,000	822	26.21
Miscellaneous	.....	30,780	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	759,846,578	775,561,175	903,850,687	897,995,265	1,004,266,723	901,740,870	845,803,454	785,304,403	901,273,323	319,419	7 73

Field ranked twelfth in the list of big producing fields. At the close of 1933 it ranked fourth and by close of this year it may rank second. The Bradford Field gained one position and will ultimately pass Coalinga and Smackover.

The Oklahoma City Field has produced 188,628,232 bbls. up to the close of 1933 and may not get into the 300,000,000-bbl. class.

The record production of the East Texas Field, 202,869,340 bbls. in 1933, is emphasized when it is recalled that the peak year of Seminole was 135,951,098 bbls. in 1927. East Texas produced

(Continued on Page 98)

Variation in Annual Crude Oil Production of the Major Fields of the United States From 1925 to 1933, Both Inclusive

(In Barrels of 42 Gallons)

Pool—	1925	1926	1927	1928	1929	1930	1931	1932	1933
Santa Fe Springs, California	18,969,528	17,446,709	15,153,578	16,093,931	76,477,464	44,251,396	24,272,660	22,538,036	18,268,904
Elwood-Goleta, California	.....	.....	.....	86,840	895,152	9,435,819	14,606,307	10,470,059	5,441,626	4,918,488
Ventura Avenue, California	6,699,403	14,795,495	17,808,704	18,920,942	20,934,388	17,493,155	16,255,256	12,332,853	12,575,647
Seal Beach, California	.....	587,107	16,424,929	12,436,371	14,418,305	8,026,796	4,882,115	4,522,489	3,987,459
Kern River, California	5,901,855	4,358,396	6,098,582	5,071,284	6,089,344	5,349,915	3,857,474	3,387,262	3,208,773
Midway-Sunset, California	36,923,402	33,968,755	31,670,708	27,314,093	25,310,976	23,487,147	18,728,461	17,929,036	17,540,122
Elk Hills, California	11,971,149	12,292,754	10,073,073	8,107,198	6,353,035	6,572,379	4,925,636	4,537,461	4,488,688
Coalinga, California	7,751,107	7,295,807	7,154,599	4,655,284	3,558,843	3,373,078	2,978,392	3,649,578	4,424,043
Fullerton, California	4,481,443	6,987,489	7,008,934	5,743,044	4,813,942	4,423,266	3,626,008	3,018,125	2,964,654
Coyote, California	7,140,004	6,030,619	5,146,864	4,901,988	4,176,035	3,890,047	3,751,857	3,716,467	3,694,139
Montebello, California	6,843,194	6,515,493	5,498,252	4,369,638	3,657,922	2,712,725	2,446,052	2,162,530	1,932,596
Richfield, California	4,318,488	5,574,244	7,884,042	6,798,673	5,776,258	3,643,578	2,443,186	2,263,699	2,466,518
Huntington Beach, California	15,887,474	19,064,814	26,344,697	19,642,278	16,007,030	11,108,203	7,778,549	8,016,801	13,100,489
Long Beach, California	40,173,375	37,931,964	34,541,667	62,467,103	60,495,555	36,599,688	30,166,409	27,435,553	24,825,049
Torrance, California	13,242,817	10,354,905	8,338,938	6,454,067	5,000,218	4,116,846	2,191,781	2,281,274	2,381,875
Inglewood, California	18,348,396	17,390,131	12,571,556	10,762,797	8,768,101	6,429,205	5,289,125	4,869,335	4,059,972
Dominguez, California	13,328,817	7,801,586	5,887,645	4,267,009	3,606,850	3,694,075	4,183,052	6,823,579	6,626,615
Playa Del Rey, California	.....	.....	.....	.....	25,121	4,719,981	9,759,018	5,910,926	4,061,577
Kettleman Hills, California	.....	.....	.....	199,699	1,951,786	6,209,357	16,544,824	21,959,601	21,624,020
Mount Poso, California	.....	.....	40,277	53,977	1,826,056	3,883,924	3,009,374	2,907,839	3,050,826
Rosecrans, California	7,263,466	6,114,430	3,506,116	2,392,325	2,463,808	2,435,341	1,334,452	1,125,624	1,086,163
Joiner, Texas	.....	.....	.....	.....	.....	29,122	37,932,810	37,131,836	58,145,564
Kilgore, Texas	.....	.....	.....	.....	.....	.....	43,537,815	39,086,616	63,537,717
Longview, Texas	.....	.....	.....	.....	.....	.....	26,257,287	45,725,947	81,186,059
Conroe, Texas	.....	.....	.....	.....	.....	.....	.....	2,499,645	21,286,672
Pecos County, Texas	.....	.....	5,250,173	22,673,875	41,733,955	42,603,498	27,401,174	23,654,666	20,983,060
Salt Flat, Texas	.....	.....	.....	178,430	13,556,048	7,387,359	4,350,149	2,979,078	2,090,838
Pampa, Texas	.....	.....	3,966,412	7,795,865	18,406,284	21,782,549	14,861,340	11,244,964	10,386,789
Chalk-Settles, Texas	.....	100,915	1,127,269	4,692,236	14,826,190	11,188,886	9,762,304	6,668,057	5,782,469
Barbers Hill, Texas	38,338	192,971	307,160	306,177	4,523,350	7,865,597	8,085,278	7,383,572	8,127,939
Sugarland, Texas	.....	.....	.....	391,244	4,016,401	4,291,689	4,198,004	3,424,869	2,546,356
Wilbarger County, Texas	3,314,523	5,116,448	4,462,768	8,124,626	10,411,183	7,867,089	4,167,464	3,361,161	2,879,742
Humble, Texas	1,729,740	1,679,449	1,523,844	1,263,983	2,996,409	5,864,035	3,041,585	2,238,043	1,728,362
Pierce Junction, Texas	327,815	1,041,723	3,163,585	3,983,484	5,193,061	4,056,270	2,960,390	1,837,673	1,575,223
Mirando, Texas	1,069,980	4,227,957	4,540,520	3,098,196	4,165,620	4,097,075	5,063,071	6,340,301	7,400,444
Shackelford County, Texas	1,049,283	2,712,610	3,038,704	3,639,368	4,145,166	2,319,132	1,203,841	1,445,565	1,159,515
Burkburnett, Texas	5,158,665	4,330,121	4,592,203	4,031,011	3,597,936	3,104,834	2,460,663	2,005,286	2,136,229
Electra, Texas	6,294,646	6,127,336	5,099,618	4,627,192	4,601,996	3,995,470	2,941,619	2,988,143	2,773,284
Archer County, Texas	13,254,247	11,875,426	9,648,832	7,374,445	6,592,594	6,023,760	4,384,656	4,057,536	4,543,939
Hutchinson County, Texas	382,340	23,101,806	32,240,493	13,839,632	9,709,746	7,285,486	3,933,837	4,496,338	3,966,016
Brown County, Texas	1,349,932	3,596,033	7,519,647	4,257,149	3,147,236	2,291,227	1,204,495	963,828	869,383
Big Lake, Texas	8,759,457	10,978,135	8,668,381	7,039,043	6,425,664	7,016,204	9,501,820	9,068,844	6,851,980
Hendrick, Texas	.....	6,431	3,109,523	58,893,863	49,826,190	25,925,581	14,992,723	11,152,545	7,497,934
Luling, Texas	9,371,992	7,809,771	6,099,264	5,097,808	4,246,861	3,476,058	2,948,514	2,653,814	2,442,080
Hull, Texas	7,296,687	7,242,551	5,914,333	4,115,269	3,488,869	3,161,436	2,237,018	1,855,169	1,980,342
West Columbia, Texas	4,183,636	3,366,892	3,459,220	2,928,949	2,441,432	1,915,990	1,490,108	1,329,437	1,215,801
Wortham, Texas	16,024,035	2,834,207	1,137,396	664,582	430,552	276,468	148,646	49,787	45,814
South Liberty, Texas	4,674,003	2,089,391	1,102,830	1,404,499	2,207,257	1,550,477	694,626	389,575	267,520
Spindletop, Texas	420,893	14,838,218	21,264,935	14,332,357	10,183,684	5,997,913	3,209,994	1,442,560	1,168,432
Powell, Texas	17,218,874	10,379,485	6,249,034	4,059,389	2,884,177	2,077,524	1,362,278	956,071	990,257
Young County, Texas	.....	2,900,081	3,473,329	2,987,054	2,481,445	5,229,401	4,231,600	3,391,514	3,048,014
Van, Texas	.....	.....	.....	.....	122,139	7,530,222	15,542,023	17,361,174	17,271,227
Refugio, Texas	.....	.....	.....	25,312	2,063,475	11,698,202	9,291,937	3,521,832	2,148,847
Darst Creek, Texas	.....	.....	.....	.....	228,876	11,343,682	7,963,694	6,080,127	4,413,259
Thompson, Texas	.....	.....	.....	.....	.....	.....	731,624	4,223,213	4,938,511
Upton-Crane, Texas	.....	2,218,242	29,583,131	25,261,260	17,195,992	14,152,389	7,102,015	7,375,773	6,155,487
Mexia, Texas	6,730,323	4,826,454	4,127,388	2,552,468	1,939,317	1,510,993	1,186,770	967,165	872,788
St. Louis-Pearson-Maud, Oklahoma	10,400	10,677	1,406,020	21,878,954	36,718,245	13,194,525	8,056,449	7,368,077	8,466,897
Oklahoma City, Oklahoma	.....	.....	.....	110,496	8,709,727	34,603,067	44,822,508	33,397,537	66,984,570
Little River, Oklahoma	.....	.....	5,144,014	24,447,158	28,909,393	17,348,145	9,444,872	6,391,202	6,310,665
Marshall-Lovell-Crescent, Oklahoma	.....	.....	436,213	2,692,520	5,759,444	2,196,202	1,256,441	926,897	731,016
Allen, Oklahoma	93,124	174,049	593,420	6,958,689	8,971,530	6,579,898	3,839,577	3,255,495	3,342,983
Carr City, Oklahoma	.....	.....	.....	.....	3,309,094	3,280,091	4,262,219	4,251,966	2,748,695
Seminole City, Oklahoma	.....	10,838,823	47,039,644	18,237,004	11,291,330	6,562,504	4,370,314	3,959,604	3,932,217
Earlsboro, Oklahoma	.....	388,460	36,885,196	33,321,824	25,602,005	23,398,033	12,699,233	10,689,164	10,915,763
Bowlegs, Oklahoma	.....	.....	36,649,733	23,800,896	12,122,250	6,509,450	4,391,549	4,200,043	3,917,746
Searight, Oklahoma	.....	.....	10,232,511	5,218,241	3,867,349	3,107,065	1,501,928	1,238,664	1,012,542
Sholem-Alechem-Tatums, Oklahoma	634,331	2,011,408	5,255,516	5,328,386	4,829,057	4,852,825	4,579,669	4,330,587	4,348,050
Burbank, Oklahoma	19,954,667	16,352,805	15,266,099	13,060,449	7,435,589	5,717,088	4,566,290	3,974,096	3,516,190
Tonkawa, Oklahoma	22,721,580	13,867,121	7,747,121	4,878,203	3,518,176	2,432,084	1,991,634	1,836,751	1,675,161
Bristow, Oklahoma	9,547,666	9,080,207	7,585,670	5,624,601	5,295,920	4,678,137	3,661,296	3,095,326	3,190,604
Cushing-Shamrock, Oklahoma	8,024,551	7,621,495	6,942,017	6,521,413	5,988,122	4,980,031	4,656,393	4,349,054	4,367,112
Cromwell, Oklahoma	11,673,369	6,193,396	4,521,063	3,386,553	2,867,933	2,604,682	1,897,207	1,827,744	1,806,735
Healdton, Oklahoma	5,575,981	5,501,310	5,447,776	5,068,978	4,599,309	4,208,631	4,025,058	3,880,981	3,638,589
Konawa, Oklahoma	.....	.....	.....	.....	.....	5,099,516	3,118,045	1,713,652	1,100,579
Garber, Oklahoma	7,484,428	11,207,851	5,292,726	2,943,248	1,973,902	1,639,045	1,293,054	1,066,194	1,005,710
Wewoka, Oklahoma	4,483,843	9,573,687	5,899,957	2,415,180	2,409,118	1,428,714	2,844,277	1,977,037	1,647,181
Davenport, Oklahoma	3,131,158	4,309,769	1,224,921	764,121	628,859	443,493	333,112	298,112	272,400
Hewitt, Oklahoma	5,324,672	4,200,975	3,539,005	3,338,421	2,952,560	2,501,412	2,145,897	2,045,081	1,908,514
Graham-Fox, Oklahoma	4,442,526	4,114,264	3,307,351	2,563,882	1,991,753	1,625,203	1,464,595	1,328,227	1,563,404
Papoose, Oklahoma	7,802,531	3,632,801	2,467,950	1,546,151	1,204,529	982,387	714,683	642,095	538,591
Sedgwick County, Kansas	.....	.....	.....	378,851	8,899,688	7,719,802	5,840,234	4,538,283	3,543,473
Eldorado-Augusta, Kansas	8,867,807	9,634,084	10,517,922	9,690,889	9,272,141	9,099,075	7,769,394	6,684,285	5,947,371
Greenwood County, Kansas	13,464,805	17,074,977	12,664,125	9,872,560	7,920,990	7,265,892	5,564,320	4,863,996	4,312,644
Sumner County, Kansas	3,436	1,248,088	6,708,275	7,787,738	4,566,556	3,224,852	2,348,371	1,622,813	1,319,952
McPherson County, Kansas	.....	.....	.....	.....	.....	5,604,670	9,184,393	7,748,212	11,763,473
Homer, Louisiana	4,815,883	2,071,498	1,813,900	1,576,940	1,418,424	1,268,578	1,110,815	1,047,672	979,937
Caddo, Louisiana	4,178,839	4,620,130	6,047,857	4,888,365	4,652,047	4,379,614	3,345,157	2,617,094	2,282,948
Haynesville, Louisiana	4,815,883	3,579,359	2,754,300	2,222,804	1,802,721	1,746,089	1,908,244	1,579,798	1,412,719
Urania, Louisiana	9,610	4,130,917	3,621,650	2,656,050	2,120,465	1,905,492	1,478,549	1,267,008	914,664
Smackover, Arkansas	74,075,613	52,155,308	35,507,476	24,775,769	19,666,126	18,755,335	12,044,935	9,716,628	8,897,531
El Dorado-Champagnolle, Arkansas	3,220,435	2,712,610	2,188,033	5,617,219	4,485,371	2,986,026	2,276,413	1,765,143	1,451,817
Salt Creek, Wyoming	21,680,070	18,016,104	14,397,590	14,066,816	11,365,322	10,517,980	8,846,658	7,918,399	7,026,294
Lea County, New Mexico	.....	.....	.....	34,934	740,165	9,459,319	14,596,714	11,768,252	11,210,908
Sunburst, Montana	2,895,910	6,656,280	4,313,388	3,209,574	2,323,406	1,940,515	1,519,935	1,194,786	1,187,778
Bradford-Allegany, Pa.-N. Y.	5,812,625	6,206,000	7,314,500	8,418,000	11,274,000	12,249,065	11,419,000	12,682,124	12,500,513

Although 1933 Ended With Higher Refined Oil Prices, Year Was Worst in Industry's History

By W. T. ZIEGENHAIN

The speedy recovery of refined oil prices during the last half of 1933 from the lowest level reached in the history of the industry provides an optimistic atmosphere with which to usher in the new year but this improvement was not enough to keep 1933 from being marked the "worst ever."

After passing through two years of abnormally low refined oil prices students of the market felt that a turn would need to come in 1933. As the year progressed, however, there was an ever increasing flow of crude oil from the East Texas Field which could not find an outlet in the normal channels. Producers in the East Texas Field sought outlets of one kind or another and that oil found its way to the refineries in the Chicago area, throughout the Mid-Continent, the Atlantic Coast and great volumes of it were transported to the Gulf Coast to be refined there and abroad. The only important refining area which was not reached directly by East Texas crude was California but even there, the local gasoline market had to absorb several cargoes of East Texas gasoline shipped all that distance through Gulf Coast terminals.

The growth of refining activities abroad as a result of foreign purchases of cheap East Texas oil also helped to stifle the California export market so it may be said that not a single area escaped the destructive influence of overproduction in East Texas.

It becomes apparent then that the review of the trend of refined oil prices during the year becomes somewhat of a summary of the control of production in East Texas. With this true, more attention will be given here to that subject than would ordinarily appear in a refined oil market study. Those who followed crude oil price changes throughout 1933 will remember the posting of 25 cents for 36 gravity crude on May 5, a drop of 45 cents a barrel from the 69-cent price at which crude of this grade was selling on the first day of the year. This price was maintained for 45 days and during that time oil sold in East Texas for as low as 8 cents a barrel. In May, records show that for one week approximately 3,000,000 bbls. of crude were produced daily while domestic refineries were processing but 2,400,000 bbls. Producers in the East Texas area saw signs of water encroachment and they seemed to dedicate their lives to recovering the oil from under their lands regardless of ultimate return. There were many of them who built small plants in the field and by the end of the year there were 53 such plants there. Those plants which were built simply as an outlet for producers of so much crude will probably be abandoned as pipe lines seek the oil. It appears we are entering that period now.

Gasoline Prices

Those plants which were built simply to process crude which could not be sold otherwise caused gasoline and fuel oil prices in the Mid-Continent and Gulf Coast to reach ridiculously low levels and of course, the Atlantic Coast and California refinery markets, together with those of the Chicago and western Pennsylvania areas suffered also.

U. S. Motor gasoline sold as low as 1⅞ cents in Oklahoma in April and May and much gasoline below 60 octane left Gulf Coast terminals at 3 cents, a price unheard of in export circles before this mad scramble to convert crude oil into cash.

Fuel Oil

While this was in progress fuel oil prices sank to an equally ridiculous level. Oklahoma refiners received but 27½ cents a barrel for 16 gravity oil and in East Texas refiners were offering it for 5 cents a barrel if a guarantee was made to remove it consistently. Large earthen reservoirs were dug to hold the fuel which was accumulating in the East Texas Field. Bunker C oil went to 70 cents a barrel in the New York harbor.

Natural Gasoline

Although natural gasoline is not a direct product of crude oil, it did not escape the demoralized oil market. In June, 27-70 natural gasoline sold for 1 cent a gallon in Oklahoma. Remembering this fact and then finding that on July 1 the price was 3 cents and on October 1 was 5 cents, it becomes quite evident that forceful and effective influences must have come into the picture. This price advance was more pronounced than in other products but clearly portrays the ability of prices to respond to the program of control established under the oil code. In the months which immediately followed the adoption of the oil code and recognition of Secretary Ickes as the one controlling agent in the matter of crude production, refinery operations and the storing of crude and refined products, prices were advanced along the entire front. From June 1 to the middle of September, low octane U. S. Motor gasoline advanced from 2 cents a gallon to 5 cents and other products showed similar gains. Approximately 250,000 bbls. were cut off the daily production of crude within that time and gasoline stocks were reduced about 5,000,000 bbls. In the months which followed plans were formulated by the Planning and Co-ordination Committee under Administrator Ickes for the complete control of gasoline production, gasoline stocks and of course, a definite limit was also placed upon the production and storing of crude by allotting quotas to the individual states.

Sharp Price Advance

The plan was received enthusiastically, and as the plans went into operation, prices began to rise very quickly. On September 29, 36 gravity Mid-Continent crude was posted at $1, a compromise price between the $1.10 which the proponents of "price fixing" said was necessary to yield a fair return to the producer for his crude and the 89-cent price which was then in effect. On October 4, Pennsylvania Grade crude in National Transit lines was posted at $2.45, a new high for the year and 25 gravity Signal Hill California crude went to 94 cents a barrel. Throughout this period in the year crude production showed a decline weekly. Optimism in the refinery markets was at its highest.

Every class of refinery product came up for attention and sellers exerted every effort to consolidate their efforts behind higher levels and to codify sales practices in the minutest detail.

As is often the case, however, the anticipation was greater than the realization and during October prices on practically all products except natural gasoline and lubricating oils began to weaken.

To avert too drastic a decline, consideration was next given to the fixing of minimum prices by the oil administrator. The entire oil price structure was threatened and after much delay and controversy the administrator announced he would institute a definite schedule of higher prices after the opponents were given a hearing and if nothing developed in the meantime to disprove that an emergency existed.

Avert Price Fixing

As the time approached for a final hearing on the question frantic efforts were made by those opposed to price fixing to devise means to avert its adoption. Excess quantities of spot gasoline were quietly bought by several large units and thus a temporary stimulant was administered the general market. This proved inadequate, however, and then an announcement came that an agreement had been reached by the major refiners and marketers to establish a $10,000,000 fund for the purchase of distress refinery products with the provision that adequate control be placed upon operations through the medium of allotting individual schedules to plants by the administrator wherever more oil was run than provided in a general order covering operations of plants in a given area.

With the approval of the marketing agreement and the calling of the meeting for the organization of the pooling operations, there is evidence of renewed hope for stabilized refined oil prices.

Those who are active in the formulating of the pooling plans also realize there will be an increasing quantity of distress material with each advance in the pool's price which in itself will act as a stabilizing factor.

To start with at least, it has been suggested that the so-called pool, not operate as buyer and holder, but as a transfer agent or clearing house.

Average Yearly Published Prices on Most Important Refinery Products, 1924 to 1934

OKLAHOMA

(Price in tank car at plant)

	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924
58-60 U. S. Motor gasoline, per gal. (below 60 octane)	$.0311	$.0392	$.0345	$.0634	$.0775	$.0795	$.0667	$.1031	$.1055	$.0896
Natural gasoline, 26-70 (AA grade), per gal.	.0290	.0222	.03	.0524	.0683	.0734	.0575	.0946	.1202	.0868
41-43 water white kerosene, per gal.	.0279	.0315	.0231	.0358	.0517	.0517	.0461	.0727	.0445	.0449
24-26 fuel oil, per bbl.	.5048	.4548	.4356	.7043	.706	.7694	.9792	1.3072	1.0908	.954
32-36 U.G.I. gas oil, per gal.	.0146	.0146	.0127	.0227	.0265	.0247	.0299	.0419	.0368	.0291
200 vis. neutral, 3 color, per gal. (high cold test)	.0845	.0834	.0924	.1059	.0966	.0947	.1032	.1072	.1139	.1308
124-126 wax, per lb.	.0253	.0170	.0174	.0216	.0321	.0394	.0294	.0471	.0516	.0446
150-160 D color bright stock, per gal.	.1852	.1837	.1631	.2977	.3368	.2310	....	....	....	....
Crude (36 A.P.I. gravity), per bbl.	**.62**	**.88**	**.63**	**1.23**	**1.37**	**1.31**	**1.38**	**2.13**	**1.87**	**1.63**

CALIFORNIA

	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924
U. S. Motor gasoline, per gal. (low octane)	$.0523	$.0546	$.0510	$.0806	$.0849	$.0919	$.0873	$.1134	....	....
Natural gasoline, 75-85, 390 e.p., per gal.	.0462	.0447	.0418	.0712	.0803	.0726	.093	.1465	....	....
38-40 kerosene, per gal.	.0384	.0398	.0425	.0455	.0569	.0611	.07	.0745	....	....
15-20 fuel oil at tidewater, per bbl.	.5162	.5548	.5836	.6346	.6724	.8892	.9221	.9813	....	....
Crude (25 A.P.I. gravity, Signal Hill), per bbl.	**.84**	**.83**	**.76**	**1.16**	**1.05**	**.96**	**1.00**	**1.37**	**1.35**	**1.06**

PENNSYLVANIA

	1933	1932	1931	1930	1929	1928	1927	1926	1925	1924
58-60 U. S. Motor gasoline, per gal. (below 60 octane)	$.0505	$.0568	$.049	$.0737	$.0905	$.0982	$.09	$.1273	$.1348	$.1224
45 water white kerosene, per gal.	.0446	.0451	.04	.0501	.0651	.0635	.0646	.0885	.0656	.0671
Bright stock, 10-15 pour test, per gal.	.2407	.2466	.2094	.3373	.4745	.3186	.3326	.3954	.3824	.3655
Crude (in National Transit Lines), per bbl.	**1.86**	**1.88**	**1.81**	**2.55**	**3.69**	**2.98**	**2.87**	**3.51**	**3.50**	**3.60**

Average Domestic and Export Refined Oil Prices Over the Past Three Years

(QUOTATIONS F.O.B. PLANTS AND TERMINALS)

	1933					1932					1931				
	Av. pr. for yr.	High	Low	1st 6 mos.	2nd 6 mos.	Av. pr. for yr.	High	Low	1st 6 mos.	2nd 6 mos.	Av. pr. for yr.	High	Low	1st 6 mos.	2nd 6 mos.
GASOLINES—															
Oklahoma (Group 3):															
U. S. Motor grades:															
Regular, 60-64 octane	.0363	.05½	.02⅛	.0257	.0469	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Premium, 65 octane and above	.0399	.06	.02⅜	.0282	.0516	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Third grade, below 60 octane	.0311	.05	.01⅞	.0227	.0395	.0392	.05	.02⅛	.0381	.0403	.0345	.05	.02⅛	.0335	.0354
60-62 400 (no octane rating)	.0328	.05	.02	.0244	.0411	.0411	.05⅛	.02⅝	.0390	.0422	.0366	.05⅛	.02⅝	.0357	.0376
64-66 375	.0370	.05⅜	.02¼	.0269	.0471	.0444	.05⅜	.02¾	.0434	.0454	.0399	.05⅜	.02¾	.0392	.0406
North Texas:															
U. S. Motor, below 60 octane	.0303	.04¾	.01⅞	.0221	.0385	.0384	.04⅞	.02⅝	.0374	.0393	.0330	.05	.02⅛	.0314	.0346
64-66 375	.0370	.05¼	.02¼	.0269	.0471	.0436	.05¼	.03⅝	.0429	.0444	.0397	.05⅜	.02¾	.0389	.0404
Pennsylvania:															
U. S. Motor	.0505	.05¾	.04¼	.0469	.0541	.0568	.06⅞	.04	.0511	.0626	.0490	.06¼	.04¼	.0546	.0434
California:															
54-58, U. S. Motor	.0523	.08	.04	.0497	.0549	.0546	.06¼	.04¼	.0498	.0593	.0510	.08½	.03	.0481	.0538
New York (Bayonne, N. J.):															
U. S. Motor, below 65 octane	.0554	.06¼	.04	.0503	.0605	.0643	.08	.05½	.0605	.0682	.0604	.07	.05⅛	.0644	.0564
65 octane and above	.0557	.069	.04½	.0529	.0624	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gulf Coast (domestic):															
U. S. Motor, below 65 octane	.0420	.05¾	.03	.0338	.0501	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
U. S. Motor, 65 octane and above	.0473	.06	.03½	.0396	.0550	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
NAPHTHAS—															
Chicago*:															
Stoddard solvent, 300 i.b.p.-410 e.p.	.0536	.06⅝	.04¼	.0491	.0580	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
NATURAL GASOLINES—															
Oklahoma (Group 3):															
26-70	.0290	.05¼	.01	.0172	.0408	.0222	.03	.01⅜	.0190	.0254	.03	.05	.01⅜	.0241	.036
California:															
75-85 375	.0462	.06½	.03½	.0388	.0535	.0447	.05¼	.03¾	.0444	.045	.0418	.05¾	.01¾	.0370	.0466
KEROSENE—															
Oklahoma (Group 3):															
41-43 water white	.0279	.03½	.02¼	.0257	.0300	.0315	.04¼	.02⅜	.0317	.0313	.0231	.03	.01¾	.0262	.02
North Texas:															
41-43 water white	.0269	.03¼	.02⅛	.0247	.0291	.0309	.04¼	.02⅜	.0314	.0303	.0215	.03	.01¾	.0235	.0195
Pennsylvania:															
45 water white	.0446	.05¼	.04	.0439	.0452	.0451	.05	.04	.0442	.0459	.0410	.05¼	.03½	.0453	.0366
California:															
38-40 high burning test	.0384	.04¼	.03½	.0358	.0410	.0398	.04½	.03¾	.0392	.0404	.0425	.05	.03¼	.0436	.0413
New York (Bayonne, N. J.):															
41-43 water white	.0522	.05½	.04¾	.0522	.0522	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gulf Coast:															
41-43 water white	.0408	.04½	.03¾	.0393	.0423	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
FURNACE OILS AND TRACTOR FUELS—															
Oklahoma (Group 3):															
32-36 straw zero	.0232	.03	.01⅝	.0206	.0258	.0218	.03⅛	.01⅝	.0179	.0256	.....	.....	.....	.....	.....
38-40 straw	.0237	.03	.01⅝	.0218	.0256	.0238	.03⅜	.01¾	.0198	.0277	.....	.....	.....	.....	.....
New York (Bayonne, N. J.):															
36-40	.0515	.05½	.05	.05	.0530	.0472	.05	.03¾	.0453	.0492	.....	.....	.....	.....	.....
21 (industrial)	.0370	.04	.03½	.035	.0379	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
GAS OIL, DIESEL OIL AND FUEL OIL—															
Oklahoma (Group 3):															
U.G.I. gas oil	.0146	.02⅛	.00⅞	.0116	.0176	.0146	.02⅛	.01	.0122	.0171	.0127	.02	.00⅝	.0143	.0111
28-30 zero to 10	.7568	.95	.60	.7135	.8000	.6397	1.00	.45	.487	.7923	.....	.....	.....	.....	.....
Below 16	.3899	.50	.27½	.3298	.4500	.3250	.45	.20	.2596	.3904	.2904	.42½	.20	.3510	.2298
California:															
27 plus Diesel	.8406	.95	.75	.8212	.8600	.7432	.85	.70	.7538	.7327	.7510	.80	.70	.7462	.7558
15-19 bunker (at tidewater)	.5162	.55	.50	.5173	.5250	.5548	.60	.50	.5635	.5462	.5836	.60	.55	.5673	.60
Gulf Coast:															
28-30 Diesel	1.585	1.80	1.50	1.50	1.670	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New York (Bayonne, N. J.):															
28-30 Diesel (lighterage 6½ cents bbl.)	1.760	1.95	1.65	1.65	1.86	1.502	1.65	1.30	1.3538	1.65	1.5673	1.85	1.301	1.7538	1.3808
Bunker C (New York Harbor)	.8625	1.20	.70	.7250	1.00	.7269	.85	.60	.6615	.7923	.8346	1.05	.60	.9923	.6769
NEUTRAL OILS—															
Oklahoma (Group 3), zero to 10 cold test:															
200, 3 color, high cold test	.0845	.09¼	.08	.079	.0900	.0834	.08½	.08¼	.0843	.0825	.0921	.09¾	.08½	.0944	.0898
200, 3 color, 15-30 cold test	.0778	.08¼	.07¼	.0733	.0822	.0778	.08¾	.07½	.0785	.0770	.....	.....	.....	.....	.....
Pennsylvania:															
200, 3 color, 10 pour test	.1872	.26	.14	.1633	.2111	.1956	.21	.17	.1992	.1921	.2031	.22½	.17¼	.2007	.2056
Gulf Coast:															
200, 3 pale oil	.0605	.06½	.05½	.0612	.0597	.0643	.07	.06	.0658	.0627	.0775	.08¼	.07	.0807	.0743
200, 5-6 red oil	.0494	.05½	.04½	.0515	.0473	.0506	.06	.05	.0531	.05	.0699	.07½	.06	.0731	.0666
California:															
200, 2½-3 pale	.1177	.23	.09½	.0981	.1373	.0820	.10	.07¾	.0822	.0818	.095	.10	.09	.0988	.0912
BRIGHT AND STEAM REFINED STOCKS—															
Oklahoma (Group 3):															
150-160, zero to 10, D color	.1852	.24	.12¼	.1510	.2193	.1837	.22	.15½	.1854	.1819	.1631	.19½	.12½	.1568	.1692
600 light green, S.R.	.0558	.07	.04	.0462	.0653	.0462	.05	.04	.0444	.05	.0486	.07	.04	.055	.0420
Pennsylvania:															
600 S.R.	.1206	.16	.07¼	.0911	.1500	.1236	.14	.09½	.127	.1202	.1014	.14¼	.07½	.0825	.1203
Bright stock, 10 pour test	.2407	.27½	.18	.2094	.2720	.2466	.28	.19	.2444	.2488	.2084	.29	.16¼	.1784	.2405
WAX—															
Oklahoma (Group 3)—															
124-126 (crude scale)	.0253	.03¾	.01⅝	.0179	.0326	.017	.01⅞	.01⅝	.0169	.0170	.0174	.02	.01½	.0185	.0162
New York (Bayonne, N. J.):															
120-122 (a.m.p.)	.0320	.043	.02⅜	.0266	.0373	.0263	.02⅞	.02⅜	.0281	.0245	.0293	.03	.02¾	.0297	.0288
EXPORT PRICES—															
Gasoline—Gulf Coast:															
U. S. Motor	.0421	.05⅞	.03⅛	.0344	.0497	.0452	.05	.04	.0454	.045	.043	.05¼	.03½	.0453	.0406
64-66 375	.0452	.06	.03¼	.0375	.0528	.0482	.05½	.04¼	.0488	.0470	.0497	.06⅛	.03¾	.0542	.0452
Los Angeles, Calif.:															
U. S. Motor, 53-55 gr., no octane rating	.0401	.04½	.03¾	.0375	.0427	.0381	.04¼	.03¾	.0387	.0375	.0438	.07	.03¼	.0451	.0425
U. S. Motor, 65 octane	.0497	.05½	.04½	.0459	.0504	.0489	.....	.....	.05	.0498	.....	.....	.....	.....	.....
Lubricants—New York (f.a.s. in bbls.):															
600 S.R. unfiltered	.1827	.24	.13	.1540	.2114	.2111	.23	.19	.2035	.2185	.1783	.22	.15½	.1624	.1925
Bright stock, No. 8 color	.2778	.33	.22½	.2438	.3119	.2971	.34	.24	.2935	.3008	.2803	.35½	.24¼	.2535	.3071

All Records Smashed in 1933, When Motorist Paid Only 12.76 Cents for His Motor Fuel

By T. F. SMILEY

All-time records were splintered in 1933, when motorists in the United States paid an average of only 12.76 cents a gallon for their gasoline, according to figures based on service station prices which prevailed throughout the year in 50 representative cities. Whatever they paid in addition to this was not for gasoline. It was for taxes, which ranged from 3 cents in a few—extremely few—areas to 8 cents gleaned from the consumer in several states.

This average service station price in 1933, exclusive of taxes, compares with 13.30 cents paid in the same 50 cities in 1932. The degree to which the automobile owner benefited from prices brought about not only by advances in refining methods but by a delirious market in which business considerations were flung to the winds is revealed by contrasting the 12.76 cents paid in 1933 with the 19.10 cents paid in 1924, the 19.92 cents in 1925 and the 20.92 cents in 1926. This takes no account of the vastly improved quality of motor fuel and the revolutionized filling station service.

The year 1933, like its successor, opened with a falling gasoline market, and beginning with February new all-time lows were recorded. Up to that time June and September, 1931, reflecting extremely cheap crude, had owned the distinction of the lowest 50-city net average price for gasoline, 12.21 cents having been the record for each of these months.

One New Low After Another

February 1, 1933, with its net average of 11.63 cents, spoiled that record, only to be shoved into the background itself by the March 1 net of 11.49 cents. A feeble effort at recovery ensued, but the best it could do was to register 11.58 cents as the 50-city average on April 1 and 11.60 cents on May 1. Then came a resumption of the retreat. May closed with a net of 11.1 cents and reductions in the Rocky Mountain district on the first day of June brought the average down to the new all-time low of 10.82 cents on that date. Motorists in Wichita, Kans., for instance, were filling their tanks at 7.1 cents a gallon net. Those in Kansas City, Mo., were paying 8.2 cents.

A glance at the accompanying table shows how in each of the first eight months of the year the 50-city price average in 1933 fell below that of the corresponding month in 1932. Beginning with a difference of one-third of a cent in January, the spread grew until there was a gap of 2.86 cents between the average net of 13.68 cents on June 1, 1932, and the 10.82 cents on June 1, 1933. Then the trend was reversed, until September 1, 1933, recorded an average net of 14 cents, as compared with 13.65 cents on the same date in 1932. Higher averages continued to the close of the year, when 14.3 cents net compared with 12.54 at the close of 1932.

Conditions similar to those which in 1931 dragged the prices of oil and its products to what were then the lowest levels since the World War were responsible for the debacle in gasoline prices in the first half of 1933. Proration programs of various kinds put into effect in 1932 bolstered crude prices so that in the Mid-Continent territory the average for the year was 35 per cent higher than in 1931. Gasoline prices experienced a slight bulge in sympathy with the upward movement in crude. But this brightening aspect faded in the latter part of the year when evidence accumulated that proration was not accomplishing what had been expected of it, largely because of defective enforcement.

Price-cutting in both crude and its products was added to the evils which beset the refining and marketing divisions of the oil industry in 1932, and after a peak of 14.21 cents in the 50-city average had been reached July 1 a gradual recession set in. Producers seeking quick disposition of their oil sold it below posted prices, and enough of this underpriced oil was thrown on the market to depress the prices of gasoline.

This unhealthy condition of the gasoline market was carried over into 1933. Mid-Continent crude, 36 gravity, began the year with a posted price of 69 cents at the well, but in early May it dropped to 25 cents and it stayed there till mid-June, when it got back to 44 cents. East Texas crude was obtainable for a time at 10 cents a barrel.

Market Wrecked by Ruinous Practices

Overproduction of both crude oil and gasoline, along with price-cutting and other ruinous practices, had the inevitable effect of wrecking the gasoline market. A dismal outlook confronted refiners and marketers at the beginning of June. A flood of cheap motor fuel from East Texas was finding outlets in the Middle West and the Southeast, and refiners in other districts were compelled to compete with it. The result was that in some areas gasoline prices were declining in the period of maximum consumption.

Announcement of a code of fair practices for the petroleum industry imparted a bit of hope, and with the advent of July the 50-city average began to creep slowly upward. Issuance by Harold L. Ickes, oil administrator, on October 16 of a schedule of prices for refined products to go into effect December 1 had a cheering effect temporarily, since it seemed to assure the refiner of a profitable price for his product. In the Mid-Continent area the refiner was to receive 6½ cents for his regular grade gasoline, which at that time was yielding him 5 to 5½ cents. But it soon became evident that the government-fixed minimum prices would not become operative December 1, if ever, and after the 50-city average had reached its high mark of the year, 14.45 cents, on October 1 it began to sink, closing the year at 14.3 cents and starting 1934 with that average price. Incidentally, no price-control program had been adopted and the industry was waiting for Secretary Ickes to take

Trend of Gasoline Service Station Prices

AVERAGE SERVICE STATION PRICES IN CENTS IN 50 REPRESENTATIVE CITIES, EXCLUSIVE OF TAXES

	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
January 1	16.89	16.45	18.82	20.25	16.41	18.32	17.23	14.56	12.87	12.54
February 1	20.20	19.37	18.91	20.16	16.38	17.59	16.96	14.83	12.97	11.63
March 1	20.67	21.70	19.89	19.63	16.80	17.21	16.28	14.86	12.91	11.49
April 1	21.45	21.30	21.14	18.79	17.16	17.38	15.92	13.68	13.18	11.58
May 1	21.48	20.99	21.13	17.97	17.47	17.48	16.95	12.40	13.59	11.60
June 1	21.28	20.74	22.13	17.25	17.56	18.32	17.01	12.21	13.68	10.82
July 1	20.42	21.99	22.22	17.38	17.56	18.48	16.56	12.46	14.21	13.06
August 1	19.19	22.02	22.19	17.39	18.12	18.22	16.47	12.41	14.02	13.52
September 1	18.45	19.45	22.09	17.13	18.40	18.22	16.26	12.21	13.65	14.00
October 1	16.62	18.41	21.58	16.81	18.70	18.32	15.93	12.34	12.46	14.45
November 1	16.29	18.20	20.58	16.72	18.05	17.84	15.41	12.32	13.04	14.30
December 1	16.41	18.45	20.10	16.71	18.39	17.51	14.96	12.89	12.96	14.17
Average	19.10	19.92	20.92	18.01	17.63	17.91	16.33	13.09	13.30	12.76

COMPARISON OF NET SERVICE STATION PRICES JANUARY 1, 1933 AND 1934, ACCORDING TO GEOGRAPHIC GROUPINGS

Atlantic and New England States

	1933	1934
Augusta, Me.	14.5	16.0
Manchester, N. H.	14.5	14.7
Burlington, Vt.	15.0	15.3
Hartford, Conn.	12.5	13.9
Springfield, Mass	13.5	14.1
New York, N. Y.	10.5	13.5
Philadelphia, Pa.	12.0	12.0
Providence, R. I.	11.5	13.5
Newark, N. J.	11.3	13.5
Baltimore, Md.	11.0	13.3
Dover, Del.	13.5	13.5
Average	12.7	13.9

Central

	1933	1934
Fargo, N. D.	16.1	15.6
Huron, S. D.	14.5	14.9
Wichita, Kans.	10.9	11.6
Omaha, Neb.	13.9	14.3
Tulsa, Okla.	12.0	13.0
Dallas, Tex.	11.0	14.0
Little Rock, Ark.	9.5	12.9
Kansas City, Mo.	11.1	12.7
Des Moines, Iowa	12.9	13.6
Duluth, Minn.	14.9	14.2
Milwaukee, Wis.	12.3	13.2
Chicago, Ill.	11.1	13.3
Detroit, Mich.	11.0	13.5
Indianapolis, Ind.	13.4	13.7
Cleveland, Ohio	12.0	12.5
Average	12.4	13.5

Southeastern

	1933	1934
Norfolk, Va.	11.1	12.3
Charleston, W. Va.	12.4	14.2
Louisville, Ky.	11.0	13.5
Memphis, Tenn.	10.0	13.0
Atlanta, Ga.	12.0	14.0
Charlotte, N. C.	13.3	15.6
Charleston, S. C.	11.1	13.4
Jackson, Miss.	11.0	14.5
Birmingham, Ala.	14.0	15.5
New Orleans, La.	9.0	12.5
Jacksonville, Fla.	12.0	13.5
Average	11.5	13.8

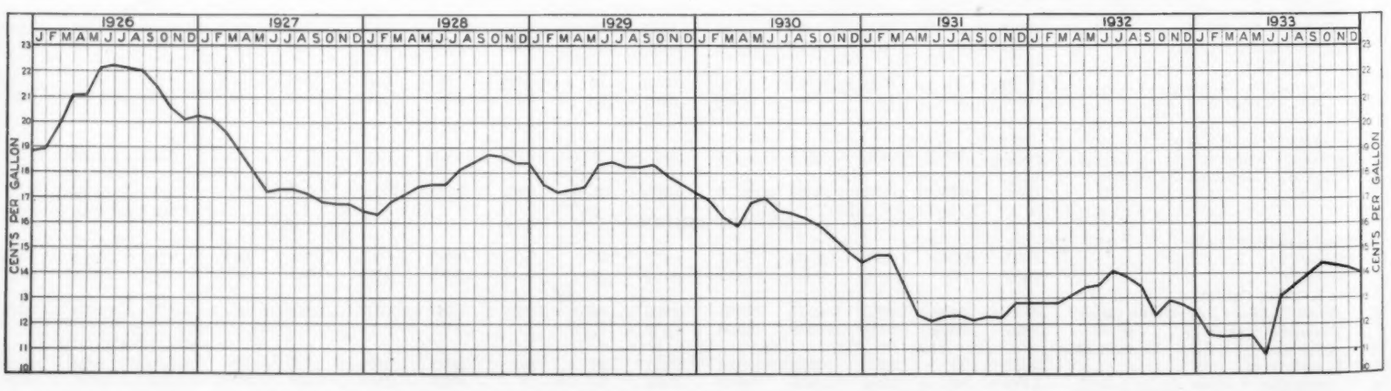
Midwestern

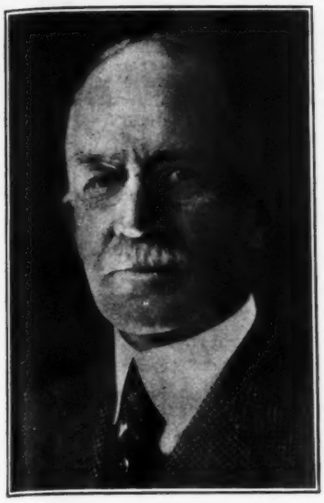
	1933	1934
Helena, Mont.	19.0	19.0
Boise, Idaho	17.5	19.0
Casper, Wyo.	14.0	16.5
Reno, Nev.	17.0	18.0
Salt Lake City, Utah	15.0	19.0
Denver, Colo.	13.0	16.0
Phoenix, Ariz.	15.5	15.5
Albuquerque, N. Mex.	13.0	15.0
Average	15.5	17.2

Western Coast

	1933	1934
San Francisco, Calif.	14.0	15.5
Portland, Ore.	10.4	17.0
Seattle, Wash.	10.4	16.0
Average	11.6	16.2

Trend of Gasoline Service Station Prices, Exclusive of Taxes, in 50 Representative Cities Throughout the United States, 1926-1933





J. D. COLLETT
President, General Association

COMMENT ON OIL SITUATION

By J. D. COLLETT

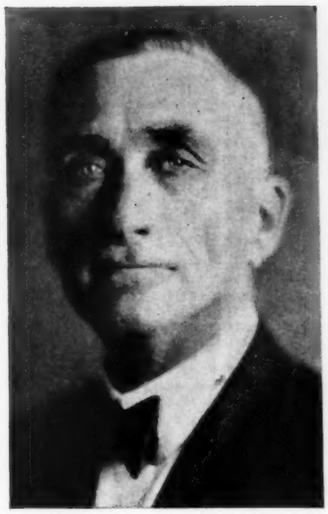
The outlook for 1934 for producers of crude oil is decidedly favorable. In fact, it looks as if the entire oil industry will have a most satisfactory year.

Under present regulations, all New Pools will be developed in an orderly manner and on an economically sound basis, which will be something new in the oil business. This will insure the crude oil market against the periodical floods it has suffered in the past and should do away with the radical price changes that have caused so much grief and have reduced values so disastrously.

Oil Code enforcement, which has lagged during the organization period, will be under way in earnest very soon and with it will come, I think, better times for all branches of the oil business.

The MID-CONTINENT OIL & GAS ASSOCIATION

E. R. FILLEY
President, Kansas-Oklahoma Division



J. R. CRAWFORD
President, Louisiana-Arkansas Division

EDWARD T. MOORE
President, Texas Division

THIS Association was organized in 1917 as a federated, non-profit organization devoted to the interests of all branches of the petroleum industry in the Southwest. It is supported by voluntary contributions. There are approximately 2,000 members.

Later local divisions were organized—the Kansas-Oklahoma and Texas Divisions in 1919, and the Louisiana-Arkansas Division in 1923. These local divisions are supported by dues of $25 per individual member per annum. There are no company memberships—only individuals can be members.

The activity of the General Association includes such matters as unitization, federal taxation and legislation, general public relations work, economic research, co-operation with NRA Code and departments of the national government, etc. The local divisions are active in matters particularly affecting the industry in their own states.

General Association offices are at 308 Tulsa Bldg., Tulsa, Oklahoma, Clarel B. Mapes, Acting General Secretary. Local Division offices are as follows: Kansas-Oklahoma Division, 308 Tulsa Bldg., Tulsa, Clarel B. Mapes, Acting Secretary; Texas Division, Kirby Bldg., Dallas, Jos. P. Laney, Secretary; Louisiana-Arkansas Division, Slattery Bldg., Shreveport, Jos. B. Elam, Secretary.

National BANK OF TULSA

CAPITAL RESOURCES
$8,000,000

*PREFERRED CAPITAL ... $4,000,000
COMMON CAPITAL ... 2,000,000
SURPLUS ... 2,000,000

*Owned by Reconstruction Finance Corporation

Tulsa, the headquarters for leading associations of the Petroleum Industry, is also the home of "The Oil Bank of America." The National Bank of Tulsa is qualified for its chosen field of service in the Oil Industry by having ample resources and a directorate experienced in every phase of oil financing.

The resources and facilities of this bank are available to those who meet its reasonable requirements, whether their business be large or small.

NATIONAL BANK OF TULSA
TULSA OKLA.

Member Federal Reserve System.

some action on a price-control plan submitted by leaders in the oil industry as a substitute for the one which he had devised.

Geographical Groups Compared

With the opening of 1934 the average net service station prices for gasoline were virtually identical in the Southeastern states, 13.8 cents; the Atlantic and New England, 13.9 cents, and the Central, 13.5 cents, as shown by groups of key cities in these various territories. In the Atlantic and New England and the Central states these prices represent an advance of 1 cent over those in effect January 1, 1933. In the Southeastern states the gain over the year before was 2 cents. A similar gain of 2 cents was recorded in the Mid-Western group of cities, where 17.2 cents on the first day of January this year compares with 15.5 cents on January 1, 1933. In the Western Coast territory, where price wars have created violent fluctuations, the average net in key cities jumped from 11.6 cents January 1, 1933, to 16.2 cents January 1, 1934. Price-cutting was being done at the opening of last year and this explains the wide discrepancy.

Federal and state taxes were the same at the close of the year as they were at the opening, though a Federal emergency tax of one-half cent, imposed June 17, 1933, was in effect throughout the rest of the year. It was dropped January 1, 1934.

Gasoline Service Station Prices in Effect During 1933, Exclusive of Taxes, in 50 Representative Cities, With Price Changes and Dates

GASOLINE TAXES IN EFFECT JANUARY 1, 1933, AND JANUARY 1, 1934

	Price Jan. 1, 1933	Price changes in first six months									Price changes in second six months							Price Jan. 1, 1934	Federal and state taxes
Birmingham, Ala.	14.0	1/4 13.0	1/13 12.0	1/12 11.0	2/19 9.0	3/23 11.0	3/28 13.0	6/19 13.5	6/21 14.5	6/28 15.5	8/28 16.5	9/2 15.5	....	....	....	....	....	15.5	8.0
Phoenix, Ariz.	15.5	1/14 14.0	3/28 14.0	5/1 14.5	5/19 14.0	6/26 15.0	....	....	....	....	7/10 13.5	9/6 15.0	12/28 15.5	....	....	....	....	15.5	6.0
Little Rock, Ark.	9.5	1/2 8.0	2/17 8.5	6/18 11.9	6/28 12.4	....	....	....	....	....	7/14 12.9	7/26 13.4	9/2 11.9	9/8 12.9	....	....	....	12.9	7.0
San Francisco, Calif.	14.0	5/28 13.0	5/1 13.5	6/20 14.0	6/26 15.0	....	....	....	....	....	9/6 16.0	10/19 15.5	11/9 13.5	12/28 15.5	....	....	....	15.5	4.0
Denver, Colo.	13.0	1/3 13.0	6/1 11.0	6/19 11.5	6/21 12.5	....	....	....	....	....	7/2 13.5	8/30 14.5	9/2 15.0	9/11 16.0	....	....	....	16.0	5.0
Hartford, Conn.	12.5	1/4 11.5	2/4 9.5	3/10 11.0	3/27 12.0	4/6 13.0	5/15 12.6	6/3 12.9	6/20 13.4	6/27 13.9	7/1 14.1	8/23 14.4	9/2 13.4	9/12 13.9	....	....	....	13.9	3.0
Dover, Del.	13.5	1/4 11.5	2/8 10.5	6/17 11.5	....	....	....	....	....	....	7/17 12.5	8/26 13.0	9/11 13.5	....	....	....	....	13.5	4.0
Jacksonville, Fla.	12.0	1/4 11.0	1/28 13.0	3/18 11.0	6/19 11.5	6/21 12.5	6/28 11.5	....	....	....	7/1 12.5	8/28 13.5	....	....	....	....	....	13.5	8.0
Atlanta, Ga.	12.0	1/4 11.0	2/13 13.0	4/8 12.0	4/28 11.0	6/2 12.0	6/19 12.5	6/21 13.5	6/28 14.5	....	7/1 13.5	7/8 14.5	8/28 15.5	9/2 14.5	10/1 14.0	11/15 13.5	12/16 14.0	14.0	7.0
Boise, Idaho	17.5	3/22 15.5	6/1 16.0	6/19 16.5	6/26 17.5	....	....	....	....	....	7/17 18.5	8/30 19.5	9/2 20.0	9/23 19.0	....	....	....	19.0	6.0
Peoria, Ill.	11.6	5/8 9.0	6/16 9.5	6/21 10.5	....	....	....	....	....	....	7/1 11.0	7/11 11.5	7/28 11.7	8/26 12.2	9/7 12.7	9/9 13.7	....	13.7	4.0
Chicago, Ill.	11.1	1/3 10.1	5/8 8.6	6/16 9.1	6/21 10.1	....	....	....	....	....	7/1 10.6	7/11 11.1	7/28 11.3	8/26 11.8	9/7 12.3	9/9 13.3	....	13.3	4.0
Indianapolis, Ind.	13.4	1/3 12.4	1/18 11.4	5/8 9.2	6/16 9.7	6/21 10.7	....	....	....	....	7/1 11.2	7/11 11.7	8/26 12.2	9/7 12.7	9/9 13.7	....	....	13.7	5.0
Des Moines, Iowa	12.9	1/3 12.7	1/18 11.9	5/8 9.1	6/16 9.6	6/21 10.6	....	....	....	....	7/1 11.1	7/11 11.6	8/26 12.1	9/7 12.6	9/9 13.6	....	....	13.6	4.0
Wichita, Kans.	10.9	1/18 9.9	5/8 7.1	6/16 7.6	6/21 8.6	....	....	....	....	....	7/1 9.1	7/11 9.6	8/26 10.1	9/7 10.6	9/9 11.6	....	....	11.6	4.0
Louisville, Ky.	11.0	1/14 13.0	4/27 11.0	5/19 10.0	6/19 10.5	6/21 11.5	6/26 12.5	....	....	....	8/28 13.5	9/29 12.5	11/10 13.5	....	....	....	....	13.5	6.0
New Orleans, La.	9.0	1/2 8.0	2/17 8.5	6/2 10.3	6/21 11.3	6/28 12.3	....	....	....	7/14 12.8	8/26 13.3	9/2 11.8	9/8 12.8	10/23 11.9	10/24 10 5	11/9 9.5	11/21 12.5	12.5	*7.0
Augusta, Me.	14.5	1/4 13.5	2/10 13.0	4/5 14.0	5/22 12.7	6/3 13.0	6/19 13.5	6/27 14.0	6/30 14.2	....	8/23 14.5	9/2 15.5	9/2 16.0	....	....	....	....	16.0	5.0
Baltimore, Md.	11.0	1/4 10.0	6/2 12.3	6/19 12.8	6/28 13.3	....	....	....	....	....	8/26 13.8	9/2 12.3	9/8 13.3	....	....	....	....	13.3	5.0
Springfield, Mass.	13.5	1/4 12.5	2/1 10.5	3/15 11.5	3/27 12.5	4/5 13.5	5/15 12.8	6/3 13.1	6/20 13.6	6/27 14.1	7/1 14.3	8/23 14.6	9/2 13.6	9/12 14.1	....	....	....	14.1	4.0
Detroit, Mich.	11.0	5/8 9.5	6/16 10.0	6/21 11.0	....	....	....	....	....	....	7/11 11.5	8/26 12.0	9/7 12.5	9/9 13.5	12/29 13.0	....	....	13.0	4.0
Duluth, Minn.	14.7	1/3 13.7	1/18 12.7	5/8 9 7	6/16 10.2	6/21 11.2	....	....	....	....	7/1 11.7	7/11 12.2	8/26 12.7	9/7 13.2	9/9 14.2	....	....	14.2	4.0
Jackson, Miss.	11.0	1/12 12.0	1/23 11.0	2/19 10.0	2/28 9.0	6/19 10.5	6/21 12.5	6/28 13.5	....	....	8/28 14.5	....	....	....	....	....	....	14.5	7.0
Kansas City, Mo.	11.1	1/3 10.1	5/8 8.2	6/16 8.7	6/21 9.7	....	....	....	....	....	7/1 10.2	7/11 10.7	8/26 11.2	9/7 11.7	9/9 12.7	....	....	12.7	*4.0
Helena, Mont.	19.0	1/18 18.0	6/1 16.0	6/19 16.5	6/22 17.5	....	....	....	....	....	7/1 18.5	8/30 19.5	9/2 20.0	9/23 19.0	....	....	....	19.0	6.0
Omaha, Neb.	13.9	1/3 13.25	1/24 12.3	6/1 10.3	6/16 10.8	6/17 11.3	6/21 11.8	....	....	....	7/1 12.3	8/26 12.8	9/7 13.3	9/9 14.3	....	....	....	14.3	5.0
Reno, Nev.	17.0	3/28 15.5	5/1 16.0	6/20 16.5	6/26 17.5	....	....	....	....	....	9/6 18.5	10/19 18.0	11/9 16.0	12/28 18.0	....	....	....	18.0	5.0
Newark, N. J.	11.3	1/4 10.3	3/27 8.9	6/2 12.4	6/12 12.9	6/28 13.5	....	....	....	....	8/26 14.0	9/2 12.5	9/8 13.5	....	....	....	....	13.5	4.0
Albuquerque, N. Mex.	13.0	1/4 12.0	2/1 10.0	2/16 12.0	3/4 10.0	6/19 10.5	6/22 13.0	....	....	....	8/1 13.5	9/2 14.0	9/11 15.0	....	....	....	....	15.0	*7.0
New York, N. Y.	10.5	1/4 9.5	3/22 10.2	6/3 10.5	6/19 11.0	6/27 11.5	6/30 11.7	....	....	....	8/23 12.0	....	....	....	....	....	....	12.0	4.0
Charlotte, N. C.	13.3	1/4 12.3	2/6 10.3	2/24 11.3	6/3 14.6	6/19 15.1	6/28 15.6	....	....	....	8/26 16.1	9/2 14.6	9/8 15.6	11/4 14.5	11/21 15.6	12/21 14.5	....	14.5	7.0
Fargo, N. D.	16.1	1/3 15.1	1/18 14.1	5/8 11.1	6/16 11.6	6/21 12.6	....	....	....	....	7/1 13.1	7/11 13.6	8/26 14.1	9/7 14.6	9/9 15.6	....	....	15.6	4.0
Cleveland, Ohio	10.0	1/3 9.0	3/3 10.0	3/30 11.0	6/21 14.5	....	....	....	....	....	7/11 15.0	8/10 14.5	9/2 12.5	....	....	....	....	12.5	5.0
Tulsa, Okla.	12.0	1/3 11.0	1/25 10.0	6/18 11.0	6/21 10.5	....	....	....	....	....	7/1 11.5	8/30 12.5	9/11 14.0	10/13 13.0	....	....	....	13.0	5.0
Portland, Ore.	10.4	3/18 11.0	5/1 13.0	6/5 14.5	6/9 15.5	6/20 16.0	....	....	....	....	9/6 17.0	9/11 16.5	10/19 16.0	11/17 15.5	12/28 16.0	....	....	16.0	5.0
Philadelphia, Pa.	12.0	1/4 11.0	1/18 10.0	2/8 9.0	3/25 10.0	6/20 11.0	....	....	....	....	7/17 12.0	8/26 12.5	10/15 11.5	10/19 10.5	12/11 11.5	12/22 12.0	....	12.0	4.0
Providence, R. I.	11.5	1/4 10.5	3/27 11.5	4/6 12.5	5/15 12.2	6/3 12.5	6/17 12.2	6/27 13.0	....	....	7/7 13.5	7/8 13.7	8/23 14.0	9/2 13.0	9/12 13.5	....	....	13.5	3.0
Charleston, S. C.	11.1	1/4 10.1	6/2 12 4	6/19 12.9	6 28 13.4	....	....	....	....	....	8/26 13.9	9/2 12.4	9/8 13.4	....	....	....	....	13.4	7.0
Huron, S. D.	14.5	1/3 13.5	1/18 12.5	5/8 10.3	6 16 10.8	6/21 11.8	....	....	....	....	7/1 12.4	7/11 12.9	8/26 13.4	9/7 13.9	9/9 14.9	....	....	14.9	5.0
Memphis, Tenn.	10.0	1/2 9.0	1/13 8.5	2/16 9.5	2/17 10.0	6/2 11.6	6/19 12.1	6/21 12.6	6/28 13.1	....	7/14 13.6	8/26 14.1	9/2 12.6	9/8 13.6	11/3 13.0	....	....	13.0	8.0
Dallas, Tex.	11.0	1/3 10.0	6/18 11.0	6/27 12.0	....	....	....	....	....	....	8/29 13.0	9/9 14.0	....	....	....	....	....	14.0	5.0
Salt Lake City, Utah	15.0	1/6 14.0	6/1 13.0	6/19 13.5	6/26 14.5	....	....	....	....	....	7/14 16.5	8/30 17.5	9/2 18.0	9/11 19.0	....	....	....	19.0	5.0
Burlington, Vt.	15.0	1/4 14.0	6/3 14.3	6/19 14.8	....	....	....	....	....	....	....	....	....	....	....	....	....	14.8	5.0
Norfolk, Va.	11.1	1/4 10.1	6/3 12.4	6/19 12.9	6/28 13.4	....	....	....	....	....	8/26 13.9	9/2 12.4	9/8 13.4	11/3 13.0	11/7 12.5	11/14 12.3	....	12.3	6.0
Washington, D. C.	10.2	6/2 12.5	6/19 13.0	6/28 13.5	....	....	....	....	....	....	8/26 14.0	9/2 12.5	9/8 13.5	11/16 11.5	12/18 13.5	12/27 12.0	....	12.0	3.0
Charleston, W. Va.	12.4	1/4 11.4	6/2 13.2	6/19 13.7	6/28 14.2	....	....	....	....	....	8/26 14.7	9/2 13.2	9/8 14.2	....	....	....	....	14.2	5.0
Milwaukee, Wis.	12.3	1/3 11.3	5/8 8.7	6/16 9.2	6/21 10.2	....	....	....	....	....	7/1 10.7	7/11 11.2	8/26 11.7	9/7 12.2	9/9 13.2	....	....	13.2	5.0
Casper, Wyo.	14.0	6/1 12.0	6/19 12.5	6/21 13.5	....	....	....	....	....	....	7/1 14.5	8/30 15.5	9/2 16.0	9/11 16.5	....	....	....	16.5	5.0
Seattle, Wash.	10.4	3/18 11.0	5/1 13.0	6/5 14.5	6/20 15.0	6/26 16.0	....	....	....	....	9/6 17.0	9/11 16.5	10/19 16.0	11/17 15.5	12/28 16.0	....	....	16.0	6.0
Minneapolis, Minn.	11.4	1/18 10.4	5/8 9.4	6/16 9.9	6/21 10.9	....	..	....	....	....	7/1 11.4	7/11 11.9	8/26 12.4	9/7 12.9	9/9 13.9	....	....	13.9	4.0
Average price	12.54	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	14.3	....

*Includes 1-cent city or parish tax.

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Every production man knows that no well produces all the oil present in the producing formation. After a few months of flush production, sand, shale, mud, or waxes, begin to plug the perforations, and production is abnormally curtailed.

In the past, well cleaning has not proved entirely successful because it was possible to undertake only part of the job. Now, for the first time, there is available safe, strong, and efficient equipment to perform the *two* essential operations necessary for thorough and successful well cleaning.

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SECOND: *To draw into the liner and remove from the well all the mud, sand, shale, waxes, or other debris, that has collected behind the oil string.*

The PERKINS PERFORATION WASHER performs the first operation, and is available in California, Wyoming, Colorado, Idaho, Montana, and other far western states through YOWELL & YARBROUGH, INC. (In the Mid-Continent oil fields the HOWCO Perforation Washer is available for the same purpose through the Halliburton Oil Well Cementing Co.)

The YAR-BRO VACUUM WELL CLEANER performs the second operation, and is sponsored everywhere by YOWELL & YARBROUGH, INC.

In the United States these tools are available on a rental service basis.

ALL TOOLS ARE SOLD FOR USE OUTSIDE THE UNITED STATES

We invite inquiries, and will be pleased to furnish detailed data regarding any of these tools, their operation, and their application to any of your well problems. We will gladly correspond with you concerning the cost of any specified program to successfully clean your wells and attempt to put them on a profitable basis.

YARBRO VACUUM WELL CLEANER

The YAR-BRO VACUUM WELL CLEANER completely *removes* loose sand, shale, mud, from behind the oil string and *ejects* this material from the well. A powerful suction is created between the upper and lower packing assemblies and all this material is drawn through the perforations into the cleaner, and either pumped or flowed from the well.

GUESSWORK IS ELIMINATED

You do not guess at results when using the YAR-BRO CLEANER. The cleaner is operated until the sand and mud have been lifted to the surface and when only clean oil is being ejected positive proof is presented that the well has been completely cleaned.

NO SPECIAL EQUIPMENT NEEDED

The regular well equipment is all that is required to operate the YAR-BRO VACUUM WELL CLEANER. The cleaner is run on either tubing or drill pipe and the alternate raising and lowering of this string of pipe does the work. *The operation is under control from the surface at all times.*

THE PERKINS OR HOWCO PERFORATION WASHER

This specially designed tool lowers well washing costs wherever used. It eliminates the use of pumps or other expensive equipment, and gives positive, permanent results.

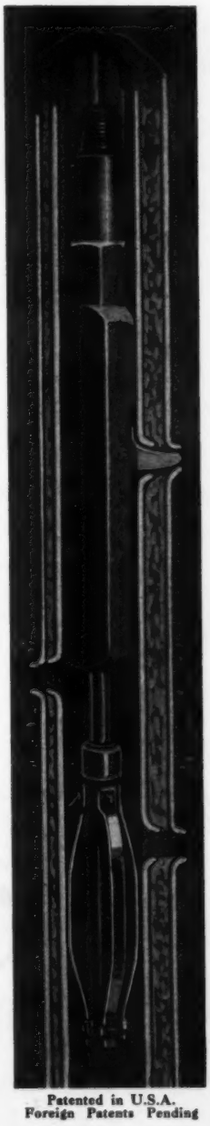
The PERFORATION WASHER is run in the well on tubing or drill pipe, to the bottom of the perforations to be washed, where the slips are set by a quarter-turn, to hold the lower section in position. The upper section is lifted from two to five feet, then forced downward by the weight of the tubing or drill pipe, driving out through the perforations all fluid between the packers, and completely cleaning the perforations of all obstructions.

The washer is under complete control from the surface at all times, and no equipment is required except the ordinary pulling equipment on every well.

The experienced operator will appreciate the fact that no hydrostatic pressure is exerted against the formation.

Helps Locate Water

Before using a water locater, run in the Perkins Perforation Washer. It will open all perforations and provide free entry of water, thus eliminating all chances of false tests by the water locater. By having the perforations open, a good cement job is also assured. Another successful use is to check the results of a perforating job.



Patented in U.S.A. Foreign Patents Pending

The New Improved RICHART Perforator

PATENTED IN U.S.A.
FOREIGN PATENTS PENDING

For complete satisfaction in perforating to test out upper sands, to eliminate water troubles, and to increase production at low cost, the Improved RICHART PERFORATOR is well known in all oil fields of the world.

OFTEN SAVES RE-DRILLING

If your well has gradually dwindled down from a paying producer to almost nothing a day, we can save you the long and expensive job of pulling the liner and re-drilling.

Positive Results

Richart long-knife perforators will cut clean, accurately-spaced perforations thru two strings of casing cemented together; for example: 4¾" inside of 6⅝"; 8⅝" inside of 10¾"; 10¾" inside of 13⅜"; and all other regular casing combinations.

Strong and Safe

The correct design and strong, simple construction of the Improved RICHART PERFORATOR is clearly shown from the illustration. Knives are furnished as specified, and wheel perforators are available for all popular sizes.

Tell us what your perforating problems are, giving casing sizes, and we will furnish recommendations and quote prices on the size and type required to do your work successfully and at minimum cost.

Showing washer with slips closed, ready to be run into the well. Note strong and simple construction.

Showing upper part of packer raised to clean the sealed-off section between packers, on the down-stroke.

YOWELL & YARBROUGH, Inc.

"Perforating and Well Cleaning Headquarters"

708 Petroleum Securities Bldg. Los Angeles, California

Another Year of Testing in East Central Texas Fails to Open Important Oil or Gas Field

By L. E. BREDBERG

The East Central Texas district, outside of the developed fields, saw a drop in wildcatting in 1933, and no pools were discovered. In the year only 141 tests, the great majority of which were wildcats, were abandoned. In 1932 there were 193 tests drilled, a difference of 52. Many of the wildcats were exceptionally interesting as to location and closely watched by independents and companies alike, different companies purchasing protection acreage and spreads around many of the tests.

More blocks were taken throughout the district during the latter six months of 1934 and many of these blocks are expected to be tested in 1934, especially blocks in the southern tier of counties in which activities have boomed since the latter part of September when the Tide Water Oil Co. and Texas Seaboard Oil Co. brought in a small producer in southwestern Anderson County. This discovery was followed by a gas discovery on a 17,500-acre block held by the Shell Petroleum Corp. and others between Centerville and Buffalo, Leon County, and on which two more tests are being drilled at the present time.

The two areas have not developed into major pools as was expected, consequently interest has been on the wane. However, many blocks have been leased and much royalty buying and checkerboarding of acreage have been done in Freestone, Anderson, Houston, Leon, Henderson and other adjacent counties and more tests are expected in these and other counties in the district within the next few months.

An important well is to be put down soon on a large block in the Cayuga area of northwestern Anderson County. Tide Water Oil Co. and Texas Seaboard Oil Co. will drill this test. It is located on a geophysical structure worked by the same geophysical research company that located the Long Lake structure for these two companies. A test across the Trinity River from this block, has proven dry. This test was drilled by the Daniels Oil & Royalty Co. on the Young-Owens farm.

A test drilling in Leon County, midway between the Leon and Anderson County discoveries is appearing as dry at the present time, running extremely low. It is being drilled by the E. L. Smith Oil Co. and others on the Simpson farm in the Alfred Penn Survey, and was an interesting test until it started running low.

Van Zandt County Exploration

Van Zandt County led the district in the number of wildcat dry holes this year, several of which were drilled in and around the Van Pool, and the others on wildcat acreage or in the shallow Nacatoch sand area north of the Van Pool. However, six Nacatoch sand wells were completed in this new area during the year, the discovery being completed by Peden & Olsen on acreage just north of several Woodbine sand tests in the Van Joint Account.

Upshur County ranked next in the number of dry holes drilled. Several of these were drilled in the Jamestown area a few miles north of producers in the East Texas Field, Gregg County. Another test is going in this area.

12 Tests in Henderson

Henderson County, in which no production has yet been found, received 12 wildcat tests during the year, several of which, however, were carried over from 1932. The Murchison area east of Athens and in the eastern part of the county received two of these tests and the area surrounding Athens received several tests which proved dry. Other wells will no doubt be drilled in the county in 1934 for it has been an interesting wildcat territory and one which the companies and operators will not give up readily.

Hopkins County was another interesting county in 1933, receiving 11 tests, all of which proved dry. Wood County saw the drilling of a couple of wildcats, both of which were failures, but another is being planned for the county at the present time.

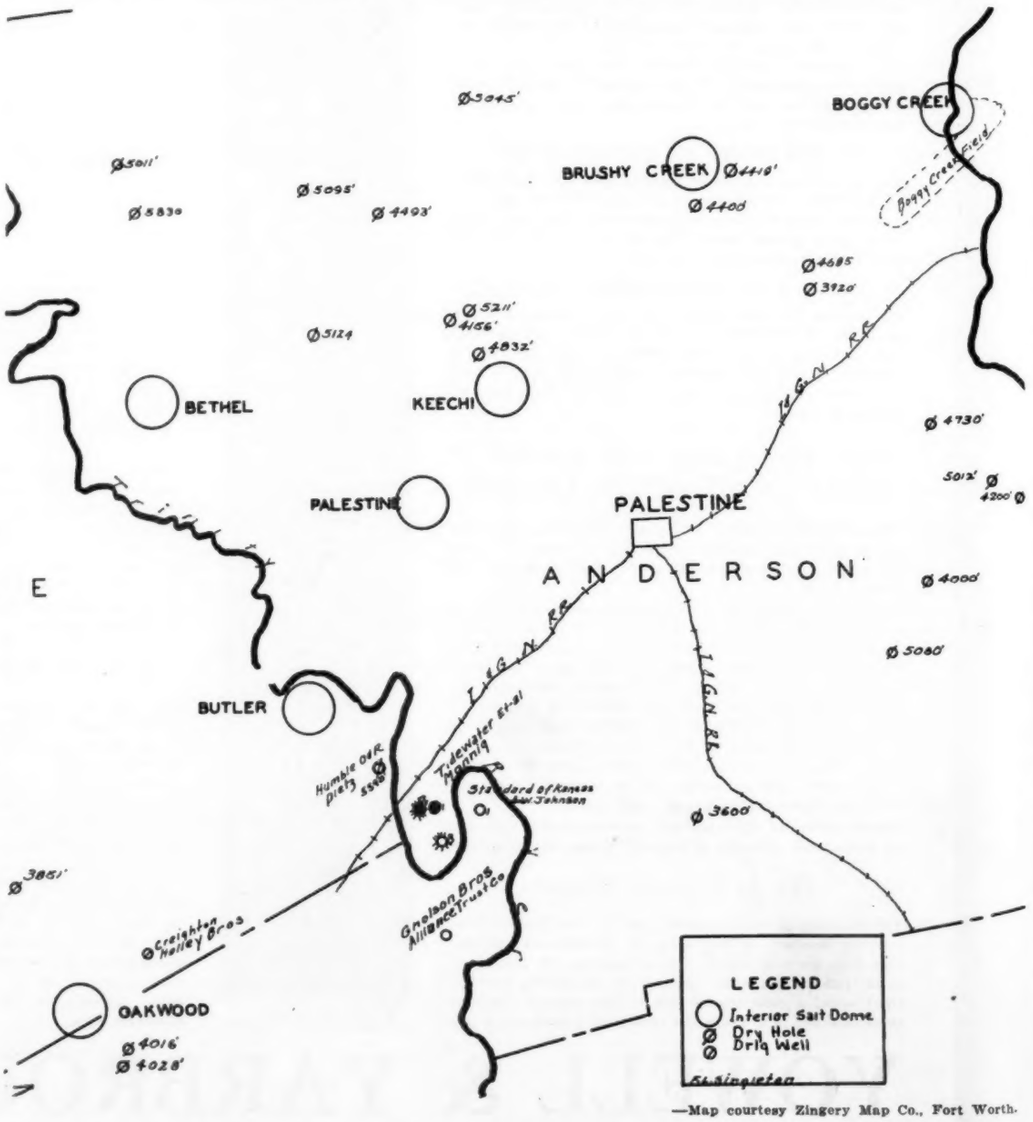
With the Long Lake and Leon County areas proving as they have, the East Texas Field held to a small allowable, and with no other major pools looming on the horizon in this district now, there is expected to be another wildcatting campaign started throughout the district within the next few months. Blocks will have to be drilled or released, and other blocks which have recently been taken will no doubt be tested for future reserves.

The Lone Star Gas Co. drilled three dry holes in Limestone County during 1933, these tests being drilled in search of gas. The company is desirous of locating a gas field to supply towns and cities in this part of Texas.

QUEBEC DRILLING

In Quebec, following failure of a number of deep tests in the St. Lawrence Valley, there was a slackening in drilling during 1933. One test was drilled jointly by Canadian Seaboard Oil & Gas, Ltd., and Alberta Gas & Fuel Co., Ltd., at St. Angele de Laval, in Nicolet County. It was carried to 5,110 feet, apparently reaching the Trenton, encountering small gas shows and later salt water.

Center of Exploration Campaign in East Central Texas in 1933, Which Continues This Year



—Map courtesy Zingery Map Co., Fort Worth.

Map showing two 1933 discoveries in East Central Texas, one of the Tidewater Oil Company and Texas Seaboard Oil Company in southwestern Anderson County and the other a gasser completed by Shell Petroleum Corporation and others in Leon County. Interior salt domes, deep abandoned tests and the Boggy Creek Field are also shown on the map

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Increase tensile strength and endurance.

FULL HEAT TREATMENT

Of box and pin . . . National's standard practice . . . develops the most desired physical properties of the steel.

ACCURATE THREADS AND SHOULDERS

Insurance against unscrewing . . . are the result of processing small forgings in precision machines without handling the entire rod.

National Sucker Rods are also available in carbon steel, with standard A. P. I. joints and without carburized boxes . . . Double pin rods with plain or hardened couplings are also standard stock.

CARBURIZED BOXES

With the outer guiding surface hardened . . . lessen wear of both rods and tubing.

OVERSIZE JOINTS

Of the next larger A. P. I. Rod . . . reduce unscrewing trouble and attendant pin breakage. Tapered strings can be made with a single thread standard.

ELECTRIC PRESSURE WELDING

Pioneered by National . . . permits separate processing of the rods and joints. This process . . . exclusively National . . . makes possible individual treatments such as carburizing, and the production of forged joints without drastic deformation of the steel.

THE NATIONAL SUPPLY COMPANIES

Michigan Oil and Gas Fields Had Greatest Year in 1933, and Another Busy Year Is Assured

By PAUL A. ELLIOTT
Staff Correspondent, Michigan Fields

"Michigan has the largest known undeveloped oil and gas area in the United States," it was declared recently by Dr. R. A. Smith, state geologist, who predicted a 1934 boom in development unparalleled in the State even surpassing the record year 1933 just closed.

Michigan closed 1933 with a potential production of more than 100,000 bbls. daily from 11 pools, 5 of them discovered during the year, and an aggregate open flow of more than 200,000,000 feet of gas daily from 40 wells in 5 gas pools, the largest of which also was opened in 1933.

Seven records were established during the year, as follows: Largest oil well drilled in with daily potential of more than 20,000 bbls.; largest gas well completed with open flow capacity of 27,500,000 feet a day; 100,000 bbls. of oil produced in 30 days by single well; annual production 7,900,000 bbls., exceeding 1932 record of 6,900,000 bbls. by 1,000,000 bbls.; monthly production of more than 900,000 bbls. in October; record number of five new oil pools and one new gas pool discovered and new record depth of 6,500 feet established in a Newaygo County wildcat.

In addition to these all-time records in the nine-year oil and gas history of the State, the number of new permits issued and oil and gas wells drilled was double that for 1932.

A total of 431 new permits to drill were issued by the oil and gas division of the State Conservation Department, more than double the total of 184 issued in 1932 and second to the high record of 576 established in 1929 when development of the Muskegon Field was at its height.

Eleven Producing Counties

The 11 Michigan counties which now have oil or gas production or both include: Midland, Isabella, Muskegon, Oceana, Ogemaw, Saginaw, Montcalm, Cass, Mecosta, Clare and Gratiot. Of the 11, Isabella and Muskegon Counties have both oil and dry gas production from different formations. Midland, Oceana, Ogemaw, Saginaw, Montcalm and Cass Counties produce oil and casinghead gas, while Mecosta, Clare and Gratiot Counties have only dry gas fields.

During the last six months, and more particularly during the last three months of 1933, the Porter Township Pool in Midland County, opened in February, 1933, became the leading pool for development as well as for new oil production.

The Porter Pool was opened by the Michigan Pacific Oil & Gas Co.'s No. 2 James H. Otway, SE NE SW Section 22-13n-12, which came in with a flow of 3,200 bbls. a day from the Dundee pay sands struck at 3,526 feet, 28 feet in the limestone.

From then on nearly half of the new permits, more than half of the new oil wells and a major portion of the semi-wildcat or extension activity of the State was centered in and about the Porter Pool. At the close of the year the daily potential of the Porter Pool was more than 90,000 bbls. compared with a total of 105,000 bbls. for the entire State.

The Porter Pool was opened about 7 miles southeast of the Yost-Jasper Township Pool also in Midland County, discovered a few days before the close of 1932 by the completion of Pure Oil Co.'s No. 1 Mattie Yost, S three-quarters W half Section 35-14n-2w, Greendale Township, as a good producer. The latter pool was extended eastward into Jasper Township in May, 1933, by Pure's No. 1 Martha Clark heirs, N SE NE Section 2-13n-2w, which made 400 bbls. initial in the Dundee pay sands.

The first big wells of the year were Pure's No. 1 Mina C. Naramore, SW Section 15-13n-1w, Porter Township, and the same company's No. 1 State-Porter, NW NW SE Section 15-13n-1w, completed early in July with initials of about 5,000 bbls. each. Several others ranging from 5,000 bbls. a day and upwards were considered "big" until the completion of Pure's No. 1 George Whitney, NW NW SE Section 17-13n-1w, for an initial of 11,000 bbls. a day early in September. The Whitney well is near Pure's No. 1 Howard and No. 1 Hathway wells, both of which made more than 5,000 bbls. a day.

Then came the record well of the year, Pure Oil Co.'s No. 2 W. W. Hoyt, NW SE SE Section 17, Porter Township, which roared in for more than 20,000 bbls. a day in the Dundee about the middle of November, breaking all new production records in Michigan.

MICHIGAN FIELD
Summary by Counties

County—	Comp.	Prod.	Dry	Gas	Oil
Midland	190	127,332	19	0	171
Oceana	15	1,150	7	0	8
Gratiot	6	0	6	0	0
Mecosta	4	0	0	4	0
Isabella	51	20,064	14	6	31
Muskegon	6	15	5	0	1
Cass	1	0	1	0	0
Saginaw	4	15	2	0	2
Lenawee	1	0	0	1	0
Newyago	2	0	2	0	0
Ogemaw	4	1,050	1	0	3
Antrim	1	0	1	0	0
Wexford	1	0	1	0	0
Montcalm	1	150	0	0	1
St. Clair	3	0	3	0	0
Gladwin	1	310	0	0	1
Sanilac	1	0	1	0	0
Clare	4	0	4	0	0
Total 1933	296	150,086	67	11	218
Total 1932	174	73,120	50	11	113
Difference	122	76,966	17	0	105

Summary of Completed Wells in 1933

Month—	Comp.	Prod.	Dry	Gas	Oil
January	13	2,005	3	1	9
February	15	840	7	0	8
March	15	1,655	4	2	9
April	24	9,825	8	0	16
May	22	5,100	3	0	19
June	13	2,925	2	0	11
July	20	6,469	5	1	14
August	25	17,111	6	1	18
September	33	16,538	10	1	22
October	37	34,261	4	3	30
November	52	43,491	12	1	39
December	27	9,866	3	1	23
Total	296	150,086	67	11	218

Other New Pools

In the meantime important oil developments also were taking place in other sections of the State from east to west through the central part of the lower peninsula.

Early in the year Edward DuVall's No. 1 Oscar Weirich, Section 31-15n-16w, Elbridge Township, Oceana County, which had struck oil in the upper Traverse pay sands at about 1,900 feet several months before, was placed in production. It made more than 100 bbls. in 24 hours starting a new western Michigan development which resulted in the completion of 10 oil producers averaging about 100 bbls. a day initial and ranging from 25 to 800 bbls. flush.

Another new pool was opened in July when Alvin H. Webber's No. 1 Stella Wilcox, NE SE Section 34-22n-2e, West Branch Township, Ogemaw County, came in as a 250-bbl. upper Traverse producer.

The Vernon Township, Isabella County Field witnessed renewed drilling activity during 1933 following completion of Mammoth Petroleum Co.'s No. 1 Verette, NW SE SE Section 23-16n-4w, with an initial at first estimated at 10,000 bbls. but soon settling down to about 5,000 bbls. a day in the Dundee.

The East Pool was extended into Lee Township, 14n-1w, during August, while the Oceana Pool was extended a mile westward into Hart Township by James Flanagan's No. 1 E. Mitchell, NE SE Section 36-15n-17w, a 200-bbl. producer before it was boosted to 800 bbls. for a few days by acid treatment.

Following a production of about 27,000 bbls. a day in August, the potential began to mount above the first allowable of 30,000 bbls. a day established September 1 under the Federal oil administration.

The potential had reached 60,000 bbls. a day, or double the allowable on October 1, when the Vernon Pool was extended about a mile by completion of Templemayr & Tope's No. 1 Reakes, SE SW NW Section 15-16n-4w, Vernon Township, Isabella County.

A second Ogemaw well, Alvin Webber's No. 2 Wilcox, NW NE NE, Section 34-22n-2e, West Branch Township, made 200 bbls. initial in the Dundee and was boosted to 800 bbls. by acid treatment late in October.

East Pool Extended

The East Pool in Greendale Township, Midland County, the largest producing area in Central Michigan in 1932, was extended 2 miles eastward by two wells, the second being Atha Oil Co.'s No. 1 fee, NW NW SW, Section 8-14n-1w, Lee Township, Midland County, completed for 130 bbls. in the Dundee in November. By then the daily potential had reached 80,000 bbls. with the allowable 30,000 bbls.

The next important development was the discovery of another new oil pool in Montcalm County by completion of Daily Oil Corp.'s No. 1 Christensen heirs, NW NW NE, Section 10-12n-6w, as a 200-bbl. upper Traverse well.

Pure Oil Co. extended the Ogemaw County Pool by drilling in its No. 1 A. Reinhardt, NW NW NW, Section 35-22n-2e, West Branch Township, with an initial estimated at 3,000 bbls. This indicated a new major pool 60 miles north of the Mount Pleasant area.

Theodore Oil Co.'s No. 1 Ogemaw Country Club well, SE SW SE Section 20-22n-2e, also West Branch Township, confirmed Pure's increase in the Ogemaw proved territory as it came in for 60 bbls. initial on a lease 2½ miles east of the other wells.

The year closed with the opening of another new pool half way between the Leaton and Vernon Fields of Isabella County. Wittmer Oil & Gas Co. of Pittsburgh, Pa., which had discovered the Leaton and Vernon Pools, drilled in its No. 1 John McReavy, E half SW, Section 12-15n-5w, Isabella Township, Isabella County, for 40 bbls. a day in the Dundee near the village of Rosebush about December 25.

As daily potentials climbed Michigan authorities gradually reduced the percentage of proration from an original basis of 200 bbls. exemption, 45 per cent to 4,000 bbls. and 10 per cent of all over 4,000 bbls. to a 100-bbl. exemption as of November 1 and 30 per cent of all potential over the minimum and finally to 10 per cent of all over 100 bbls. exemption shortly before the year closed (lowered to 7 per cent since January 1).

Wildcatting Possibilities for 1934

Wildcat drilling in 18 Michigan counties uncovered five new oil pools and the State's largest gas pool in 1933. With increasing interest indicated by permits issued for 24 of the State's 85 counties, 1934 is expected to break all records for developments in new sections of the lower peninsula despite drastic curtailment of output under the code.

Important new developments are anticipated in Ogemaw County where three producers, one with a potential of 3,000 bbls. a day, opened what appears to be a major pool, and in Montcalm County, where the discovery well of a new Central Michigan pool was brought in in Home Township, about 12 miles south of the Broomfield Township, Isabella County, gas pool.

Considerable development between the Leaton and Vernon oil pools also is anticipated as the result of a new well in Isabella Township brought in near the close of 1933 by the Wittmer Oil & Gas Co. near the village of Rosebush.

Opening of the State's largest gas field in Austin Township, Mecosta County, substantiates the belief of R. B. Newcombe, assistant state geologist, of the existence of a northwest-southeast trend between Manistee and the Detroit River which may result in new wildcatting in 1934.

Muskegon Oil Corp., unsuccessful in its 1933 attempts to open a new pool in Dalton Township north of the Muskegon Field, is preparing to test another township surveyed with a torsion balance.

In addition to the proration schedule a shutdown period of 15 days is enforced either from the time the wells are cased above the pay sands in flush pools or from the time they are drilled into the pay sands.

DECEMBER PRODUCTION, JANUARY POTENTIAL AND ALLOWABLE
(Compiled by State Proration Committee)

Pool—	No. wells	Potential	Runs	Dec. runs
Porter	108	91,479	17,765	550,705
Yost-Jasper	9	1,686	479	14,858
Chippewa-Greendale	317	5,319	5,310	164,619
Vernon	36	3,588	3,143	97,425
Leaton	19	893	760	23,562
Muskegon	179	507	507	15,721
Oceana	13	575	360	5,967
Ogemaw	4	840	193	5,968
Saginaw	136	138	138	4,271
Cass	1	3	3	90
Montcalm	1	108	108	1,626
Total	822	105,127	28,766	884,812

New Drilling Practices

Two new drilling practices utilized during 1933 contributed to the success of many operators.

Most important was the use of chemical solutions constituted principally of hydrochloric acid as a base with other patented chemical deterrents to prevent the acid from damaging the casing.

Natural initial production of wells throughout the State was greatly increased by acid treatments, first developed during the latter part of 1932 by the Dow Chemical Co. and later by other interests.

Acid treating was first tested in older wells in the Mount Pleasant and Muskegon Fields during the latter part of 1932, but was used in 1933 to boost the production of new wells immediately after they were drilled in.

The use of rotary drilling equipment to land drive pipe through the unusually heavy layer of glacial drift in central Michigan was successfully tried in development of the new Austin Township, Mecosta County gas pool. Wells were drilled more quickly and at less expense. Cable tools, universally employed throughout Michigan with few exceptions prior to last year, were used to drill into the Michigan pay sands in Mecosta County after drive pipe was landed.

New Production Record Made on Gulf Coast; Drilling in 1933 Was Greatest Since 1929

By NEIL WILLIAMS
Gulf Coast Bureau, The Oil and Gas Journal

Despite proration and field restrictions, production on the Gulf Coast during 1933 set a new high record. The total output of the district for that period was 76,143,728 bbls., that being 4,943,214 bbls. above the previous peak, which was in 1930 when the recovery ran up to 71,200,514 bbls., and 22,747,970 bbls. greater than the figures for 1932.

Field operations, indicated by the number of wells drilled, also were more active than at any time since 1929. During 1933 a total of 1,584 wells were drilled, lacking only 149 of equaling the 1929 peak when 1,733 wells were put down. It was during the latter year that such fields as Refugio, Sugarland and Raccoon Bend were at their height of development and that an extensive wildcat play was carried on in an effort to prove up the numerous geophysical prospects which were being discovered.

In this connection, however, it is interesting to note that although fewer wells were drilled in 1933 than in 1929, the number of producing wells was greater, 1,158 wells making oil or gas having been brought in last year as against 1,085 during 1929. A total of only 881 wells, 519 oil or gas, were drilled in 1932, indicating a very sharp increase in work for 1933 over the preceding year.

Conroe Biggest

A large part of the increase in production as well as greater amount of drilling activity can be attributed directly to the Conroe Field. This field, which has turned out the biggest pool on the Gulf Coast and the second largest east of the Rocky Mountains, received the bulk of its development during 1933. On January 1, a total of 689 oil wells and 7 gassers had been drilled in the field. Additional drilling there included eight wells lost by blowouts and craters and 18 dry holes. Previous to 1933, fewer than 100 wells had been drilled there.

Based on units of development, the largest of which is 20 acres, more than 13,300 acres have been actually proved up at Conroe. It is reliably calculated that the productive area when ultimately drilled will take in approximately 17,800 acres. The present drilling program for the field is being brought to a close rapidly and by March, when there probably will be a total of 750 wells, all acreage which is to be drilled at this time will be proved up, it is expected.

The peak of activity at Conroe was during January, February and March when upwards of 100 rigs were kept running. Since then, as a result of a voluntary agreement of some of the larger operating companies to curtail drilling 50 per cent and because of the completion of drilling programs on most of the smaller tracts, development has been carried on at a somewhat slower, yet steady, pace with around 40 rigs running.

Conroe produced 21,305,016 bbls. of crude during 1933, or approximately 4,000,000 bbls. less than a third of the total output of the entire Gulf Coast, that territory from Refugio County on the west to the State of Mississippi on the east. Although capable of making a good many times more, the field now is restricted to a daily allowable of 48,917 bbls., as of January 1, this being allotted on a combination acreage-potential basis, the schedules per well now ranging between 45 and 79 bbls. The field reached its highest production to date during August when the output was 2,662,683 bbls.

Discoveries in 1933

Thompson, Greta, Barbers Hill, Hull extension, Livingston, Tomball, Louise and Iowa were other fields in which active new development was carried on during the year. Of these, Greta, Tomball and Louise were 1933 discoveries, being three of a total of six new fields which were opened during the year. In the other three, including Coletto in Victoria County, one in the Ace district of southern Polk County, and Cleveland, or Tarkington Prairie, in Liberty County, there has been no extensive drilling so far.

Greta, located in Refugio County, in the lower coastal area, stands out as

Gulf Coast

SOUTH TEXAS AND SOUTH LOUISIANA

Texas

Daily Average and Monthly Production in 1933

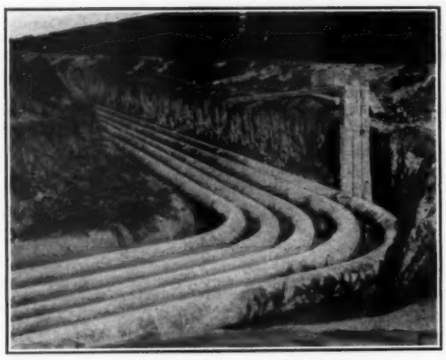
	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
ALLEN:													
Daily average	11	10	10	10	1	11	6	.....	.....	15	16	10	
Month	347	286	316	305	32	333	186	.....	.....	471	482	319	3,077
ARIOLA:													
Daily average	65	68	65	74	201	91	137	139	115	.....	1,417	1,088	
Month	2,010	1,902	2,010	2,210	6,237	2,727	4,259	4,306	3,446	.....	42,511	33,728	105,346
BARBERS HILL:													
Daily average	20,969	23,050	22,573	21,844	21,760	21,978	25,583	27,851	25,400	22,111	18,000	16,116	
Month	650,033	645,408	699,767	655,321	674,562	659,344	793,083	863,381	761,987	685,432	540,014	499,607	8,127,939
BATSON:													
Daily average	758	652	672	716	683	792	640	630	568	562	566	565	
Month	23,492	18,252	20,830	21,484	21,171	23,760	19,838	19,526	17,040	17,426	16,978	17,505	237,302
BIG CREEK:													
Daily average	1,138	1,130	1,084	1,032	1,002	1,055	1,442	1,331	1,150	1,107	983	975	
Month	35,274	31,642	33,608	30,955	31,060	31,643	44,709	41,258	34,508	34,310	29,492	30,229	408,688
BLUE RIDGE:													
Daily average	981	717	741	693	658	730	840	856	803	670	778	857	
Month	30,419	20,073	22,979	20,787	20,392	21,889	26,046	26,549	24,083	20,757	23,346	26,560	283,880
BRENHAM:													
Daily average	57	41	34	30	34	38	20	36	20	28	33	31	
Month	1,763	1,144	1,056	910	1,050	1,148	626	1,117	609	868	997	964	12,252
BOLING:													
Daily average	387	374	387	372	349	385	363	341	315	309	293	293	
Month	11,991	10,478	11,991	11,152	10,813	11,553	11,250	10,571	9,446	9,582	8,791	9,094	126,712
BUCKEYE:													
Daily average	327	.....	1,265	.....	276	2,185	2,459	996	597	310	137	324	
Month	10,139	.....	39,213	.....	8,552	65,559	76,230	30,889	17,909	9,612	4,117	10,044	272,264
CEDAR BRAKE:													
Daily average	13	40	40	54	51	50	47	28	45	.....	.....	.....	
Month	407	1,126	1,248	1,622	1,583	1,495	1,461	862	1,350	.....	.....	.....	11,154
CLAY CREEK:													
Daily average	1,017	913	971	977	1,007	955	948	971	850	818	705	787	
Month	31,523	25,562	30,107	29,310	31,219	28,657	29,412	30,111	25,513	25,353	21,144	24,386	332,297
CONROE:													
Daily average	24,337	26,632	36,332	40,994	74,675	65,061	76,995	85,893	79,916	74,412	56,762	55,066	
Month	754,449	745,692	1,126,296	1,229,815	2,314,920	1,951,835	2,386,841	2,662,691	2,397,470	2,306,766	1,702,851	1,707,046	21,286,672
DAMON:													
Daily average	617	671	719	712	781	843	809	736	673	609	518	708	
Month	19,121	18,783	22,281	21,358	24,217	25,282	25,069	22,819	20,184	18,868	15,547	21,948	255,477
SUGARLAND:													
Daily average	7,792	7,515	7,542	7,524	7,527	7,483	7,536	7,519	6,077	5,644	5,578	5,991	
Month	241,550	210,410	233,808	225,716	233,333	224,495	233,611	233,096	182,310	174,965	167,331	185,731	2,546,356
ESPERSON:													
Daily average	1,328	1,461	1,326	1,416	1,511	1,426	1,434	1,375	1,329	1,290	1,098	1,197	
Month	41,160	40,906	41,100	42,472	46,845	42,763	44,454	42,625	39,866	39,979	32,933	37,112	492,215
FANNETT:													
Daily average	304	357	324	330	326	314	321	440	437	692	701	491	
Month	9,428	9,999	10,040	9,905	10,102	9,406	9,962	13,636	13,111	21,456	21,029	15,216	153,290
GOOSE CREEK:													
Daily average	3,507	3,154	3,228	3,208	3,436	3,229	3,144	2,968	3,322	3,336	2,687	3,211	
Month	108,717	88,318	100,062	96,246	106,518	96,854	97,452	92,002	99,659	103,421	80,616	99,533	1,169,398
GRETA:													
Daily average	.....	.....	.....	.....	52	615	2,220	5,366	8,325	6,511	7,044	7,837	
Month	.....	.....	.....	.....	1,608	18,451	68,817	166,348	249,749	201,841	211,316	242,944	1,161,074
HANKAMER:													
Daily average	1,736	1,659	1,585	1,846	1,675	1,622	1,562	1,417	1,370	1,310	988	998	
Month	53,818	46,455	49,130	55,384	51,920	48,651	48,429	43,934	41,088	40,616	29,646	30,942	540,013
HIGH ISLAND:													
Daily average	5,582	5,131	6,655	7,134	7,149	7,968	8,311	8,246	7,377	6,572	6,113	6,022	
Month	173,046	143,664	206,307	214,018	221,613	239,039	257,652	256,626	221,310	203,740	183,397	186,682	2,507,094
HOCKLEY:													
Daily average	.....	54	135	62	48	34	29	20	16	14	8	7	
Month	.....	1,510	4,189	1,854	1,482	1,032	904	616	488	434	242	218	12,969
HULL:													
Daily average	5,058	4,956	4,776	4,778	5,074	4,707	4,835	4,444	5,115	6,209	6,971	8,133	
Month	156,792	138,762	148,052	143,336	157,298	141,222	149,885	137,770	153,457	192,467	209,174	252,127	1,980,342
HUMBLE:													
Daily average	5,793	5,269	5,218	5,236	5,163	5,162	4,819	4,698	4,332	4,212	3,446	3,502	
Month	179,550	147,537	161,753	157,082	160,059	154,856	149,377	145,638	129,960	130,566	103,391	108,593	1,728,362
KEERAN:													
Daily average	284	270	256	228	163	309	472	342	228	209	198	197	
Month	8,803	7,565	7,930	6,847	5,057	9,274	14,632	10,594	6,842	6,482	5,930	6,101	96,063

(Continued on Next Page)

AIRCOWELDING—the New stands TESTED and PROVED

ARKANSAS FUEL OIL CO.

Gasoline gathering system near Willow Springs, Texas. All of the vacuum lines are AIRCOWELDED. Illustration shows a position AIRCOWELD in the making.



SHELL OIL CO. of Canada, Ltd.

At Montreal East Refinery gas and oil lines are AIRCOWELDED. Illustration shows one of the 90° bends in the lines. Two bends of 15° were made on the job with aid of welding torches.

SEATTLE GAS COMPANY

Relocated gas service line serving North end of City of Seattle is AIRCOWELDED. Illustration shows a rolling AIRCOWELD in process.

AIRCOWELDING is the oxyacetylene welding process developed in AIRCO'S Research Laboratories specifically for the joining of pipe.

AIRCOWELDING represents a new deal in pipe welding because it *cuts welding time in half and saves from 30 to 50% in rod and gases.* And it does this without sacrifice of weld strength. On the contrary, test after test has demonstrated that *AIRCOWELDS are consistently stronger than the parent pipe.*

That these are not "pipe dreams" but actual facts, now stands proved by the experience of leading oil and gas companies who have used the AIRCOWELDING Process in the construction of gathering and transmis-

Write for these Bulletins

AIRCOWELDING for PIPE LINES
Gives details of the process and its advantages.

PIPING—TAILORED TO FIT
makes clear the overwhelming advantages of welded piping for buildings.

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Represented in Canada by Railway & Engineering

A NATION-WIDE OXYACETYLENE

EXCELSIOR REFINING CO.
Gathering system and part of piping in plant are AIRCOWELDED. Illustration shows a test made by bending pipe around a tree. AIRCOWELDS held perfectly.

GAS COMPANY'S BRANCH LINE
to plant of Corning Glass Works, Corning, N. Y., is AIRCOWELDED. Illustration shows a trying condition in pipe line construction. AIRCOWELDS "took it" without a failure.

MISSOURI POWER and LIGHT CO.
Important section of line bringing natural gas to Excelsior Springs health resort is AIRCOWELDED. Illustration shows AIRCOWELDING in progress.

Deal in PIPE WELDING by widespread usage . . . . .

sion lines and for the installation of piping in refineries, power plants and other buildings.

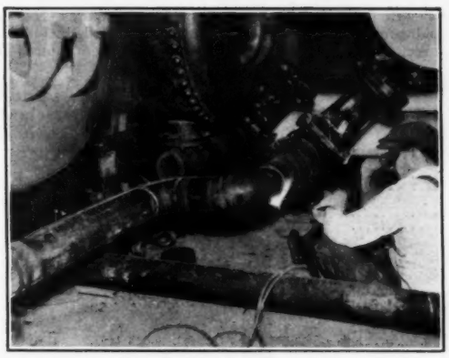
The accompanying illustrations—typical scenes from recent AIRCOWELDED projects—give an idea of the extent to which the use of the process has grown. And with its soundness and economy fully established, 1934 will see AIRCOWELDING well on its way toward becoming standard practice in pipe welding.

AIRCOWELDING *with* AIRCO EQUIPMENT *and* SUPPLIES, *backed by* AIRCO'S APPLIED ENGINEERING CO-OPERATION *and* NATION-WIDE WELDING SUPPLY SERVICE *assures the successful completion of any pipe welding project at rock bottom cost.*

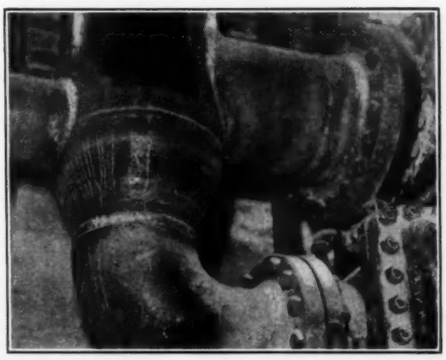
Ask for a Demonstration

Without obligation AIRCO is prepared to demonstrate AIRCOWELDING to pipe line departments of oil and gas companies and piping contractors and to furnish complete details of AIRCO Equipment, Supplies, and Service. Your request, either to the home office or the nearest district office will bring a prompt response.

GREGG TEX GASOLINE CORP., Longview, Texas. *Natural gasoline gathering system is the third big project in the East Texas field to be AIRCOWELDED. Illustration shows a section of the firing line.*



NEW YORK STATE RECONSTRUCTION HOME. *Central heating system in this recently completed project is AIRCOWELDED thruout with AIRCO oxygen, acetylene, apparatus and supplies. Illustration shows AIRCOWELDING in progress.*



STATE HOSPITAL, Wingdale, N. Y. and STATE PRISON, Ossining, N. Y. *All heating and power piping in these new, modern power plants are AIRCOWELDED. Illustration shows a reducer at the prison job—a neat piece of welded piping.*

SALES COMPANY

42nd St., New York, N. Y.

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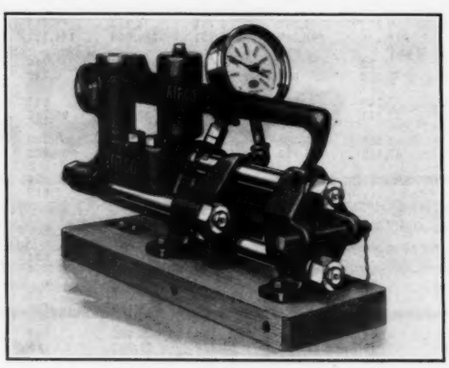
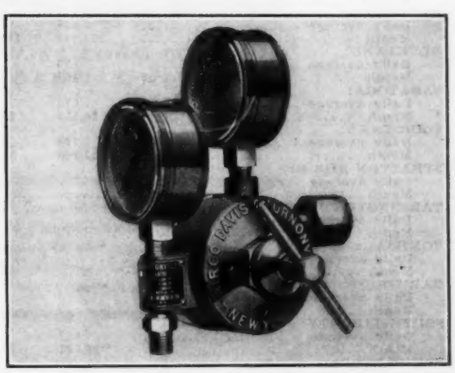
WELDING and CUTTING SUPPLY SERVICE

AIRCO PORTABLE PIPE CUTTING and BEVELING MACHINE, *cuts and bevels pipe in one operation. Works fast, leaves ends square with pipe axis and ready for welding. Weighs only 50 lbs. Bulletin on request.*



AIRCO PORTABLE WELD TESTING MACHINE *for making tensile and bend tests in the field. Simple, accurate, dependable. A valuable pipe welding accessory. Bulletin on request.*



AIRCO TWO-STAGE REDUCTION OXYGEN and ACETYLENE REGULATORS—*automatically maintains a set pressure without fluctuation from start to finish of cylinder discharge. Many other advanced features. Bulletin on request.*

the principal new discovery of 1933, considering size, extent of development and production to date. This field was opened in May by Greta Oil Corp.'s No. 1 O'Brien, which came in flowing initially at the rate of 500 bbls. daily from a sand at a total depth of 4,404 feet in the Lower Marine Oligocene.

Since the opening of the field, a total of nearly 100 wells have been drilled, covering an area of approximately 2,500 acres. Between 30 and 35 rigs have been kept busy at all times. Under restrictions limiting the number of wells to a 20-acre basis, drilling of the field has been orderly. Much of the acreage over the main part of the field is in uniform 50-acre tracts, which would permit the drilling of three wells, one each on 20 acres and a third on 10 acres, but the practice followed has been to drill only two wells, allotting to each an additional production allowance to compensate for the undrilled 10 acres.

Except for one gas well in a shallow sand at 1,729 feet and one oil well in a deep sand at 5,919 feet, all production to date has been in the 4,400-foot horizon in which the discovery well was completed. This sand has been found at practically a uniform depth all over the field and has been a consistent producer with withdrawals taken ratably on a strictly acreage basis. The 4,400-foot producing area has been fairly well defined on the south and west and some indication of playing out has been given to the northeast. A couple of deep dry holes located northeast of the field, the nearest being a mile from present production, were drilled early in the development of the field.

Greta Sands

Very little has been learned so far of the commercial possibilities of sands other than the 4,400-foot horizon. The single 5,919-foot producer, Nesral Oil Co.'s No. 2 Wilson Heard, is located on the extreme south edge, and found the deep sand when it drilled deeper after failing to find production in the 4,400-foot horizon. Two additional deep tests have been drilled in the same area by the same company, one of which found the sand but which has been unable to make a well and the other of which is drilling below the sand depth without finding production. A number of sands carrying gas and one at 3,400-3,500 feet showing oil have been found above the main 4,400-foot horizon in which gas wells probably could have been completed but so far only the one well (Floboots Oil Corp.'s No. 1 J. F. B. Heard) at 1,729 feet has been completed in any of them. Three wells have been lost by blowouts and craters in shallow sands.

Originally the field was owned almost 100 per cent by small, independent operators, but through a succession of purchases and trades the larger companies now are firmly established, including Atlantic Oil Producing Co., Stanolind Oil & Gas Co., Texas Co., Continental Oil Co., Humble Oil & Refining Co., Mid-Continent Petroleum Corp. and others. United Gas Co. holds practically all the acreage to the west and to the Fox Field, which also is owned by this company. This acreage was under lease before the opening of the Greta Field.

Two pipe line outlets have been provided for Greta. At the beginning, Atlantic Pipe Line Co. made connection with the field by laying an extension from Refugio, a distance of 10 miles, from where the company has a line to tidewater at Harbor Island. More recently the Texas Pipe Line Co. put down a 6-inch line to Refugio, where it ties in with the Humble Pipe Line Co.'s Pettus-Refugio-Ingleside line. Greta crude has been much in demand, having a very desirable base.

Coletto Opened

Coletto, one of the other new fields opened on the Gulf Coast during the year, also is in the lower coastal country, being in western Victoria County and along the same trend which extends through and includes such fields as White Point, Saxet, Refugio, Fox, Greta, O'Connor-McFaddin and Keeran. The discovery well was drilled by Stoneleigh Oil & Gas Co. on the E. B. Terrell 215 acres in the R. Manchola Survey and on a block farmed out to the company by the Gulf Production Co. The well was completed in May as a wet gasser in a sand at a total depth of 4,442 feet. Within the last several weeks this well, which since completion has been used for fuel, has started to flow around 200 bbls. of oil daily and proved the field for oil production.

Except for the discovery well, development of the field has been disappointing. A second well by the same company and located about a mile to the east found a shallow oil sand at a total depth of 2,884 feet and created considerable leasing and royalty buying excitement but efforts to complete the well as a commercial producer were unsuccessful and the hole was drilled deeper. It encountered several sands showing gas but got salt water in the sand in which the discovery well was completed and went to a total depth of 4,846 feet, where it blew out and ran wild for several days before bridging. It then was junked and abandoned. One other wet gasser, John F. Camp's No. 1 Maurer, located south of the Zimmer well, has been completed, it being in sand at a total depth of 4,459 feet.

Tomball Field

The Tomball Field, located in northern Harris County and southern Montgomery County, was opened in May by Humble Oil & Refining Co. and Magnolia Petroleum Co.'s No. 1 Kobs, in the lower J. M. Hooper Survey, which came in flowing estimated good for 2,000 bbls. daily from sand at a total depth of 5,569 feet in the Cockfield, the horizon in which

Texas (Continued)

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
LIVINGSTON:													
Daily average	.....	.....	.....	.....	165	871	1,069	2,135	2,340	2,268	1,868	2,046	
Month	.....	.....	.....	.....	5,110	26,142	33,128	66,179	70,196	70,313	56,040	63,419	390,527
LOUISE:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	208	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,448	6,448
LOST LAKE:													
Daily average	301	281	284	278	249	239	212	202	204	189	179	181	
Month	9,334	7,863	8,804	8,344	7,713	7,167	6,575	6,270	6,126	5,862	5,377	5,616	85,051
McFADDIN:													
Daily average	.....	.....	.....	61	87	52	.....	.....	.....	.....	149	124	
Month	.....	.....	.....	1,825	2,699	1,565	.....	.....	.....	.....	4,459	3,847	14,395
MANVEL:													
Daily average	431	548	573	506	1,840	2,273	2,809	2,672	2,115	2,047	1,851	1,814	
Month	13,365	15,340	17,769	15,180	57,048	68,175	87,072	82,831	65,565	63,449	55,525	56,231	597,550
MARKHAM:													
Daily average	1,470	1,471	1,147	1,214	1,145	983	921	897	761	746	712	885	
Month	45,575	41,183	35,551	36,410	35,495	29,500	28,551	27,810	22,824	23,131	21,360	27,440	374,830
MOSS BLUFF:													
Daily average	73	58	40	19	.....	.....	.....	.....	.....	.....	.....	.....	
Month	2,261	1,626	1,245	563	.....	.....	.....	.....	.....	.....	.....	.....	5,695
MYKAWA:													
Daily average	367	228	370	423	532	216	213	243	255	206	182	176	
Month	11,373	6,380	11,478	12,686	16,496	6,489	6,610	7,534	7,653	6,377	5,461	5,449	103,986
NASH:													
Daily average	132	201	169	102	52	104	39	24	21	38	45	43	
Month	4,096	5,625	5,237	3,064	1,618	3,112	1,206	744	641	1,174	1,357	1,333	29,207
NORTH DAYTON:													
Daily average	147	114	129	180	130	138	112	116	143	106	125	149	
Month	4,553	3,198	3,993	5,405	4,035	4,139	3,476	3,595	4,292	3,288	3,737	4,622	48,334
ORANGE:													
Daily average	1,148	1,091	1,029	943	963	844	824	825	840	807	713	746	
Month	35,584	30,548	31,895	28,296	29,851	25,335	25,533	25,582	25,188	25,009	21,393	23,118	327,332
ORCHARD:													
Daily average	1,490	1,174	995	984	940	863	824	1,317	1,246	1,189	1,058	1,434	
Month	46,196	32,870	30,840	29,510	29,145	25,881	25,552	40,832	37,390	36,864	31,729	44,456	411,265
PIERCE JUNCTION:													
Daily average	5,862	5,345	5,398	4,690	3,777	4,324	3,999	3,883	3,863	4,019	3,275	3,417	
Month	181,728	149,669	167,332	140,708	117,089	129,705	123,972	120,365	115,886	124,588	98,251	105,930	1,575,223
PORT NECHES:													
Daily average	1,502	1,254	961	994	926	988	1,091	1,185	1,100	1,082	1,014	1,038	
Month	46,560	35,117	29,794	29,822	28,702	29,647	33,813	36,739	32,991	33,540	30,416	32,176	399,317
RABBS RIDGE (Thompson):													
Daily average	9,487	9,008	14,301	16,632	16,492	16,241	16,543	16,296	13,294	11,906	10,175	11,619	
Month	294,099	252,226	443,337	498,969	511,258	487,235	512,838	505,170	398,827	369,097	305,255	360,200	4,938,511
RACCOON BEND:													
Daily average	4,570	4,526	4,497	4,592	4,511	4,486	4,498	4,489	3,821	3,447	3,309	3,492	
Month	141,675	126,723	139,409	137,797	139,847	134,571	139,438	139,160	114,625	106,851	99,262	108,252	1,527,610
REFUGIO:													
Daily average	7,556	7,035	7,072	6,957	6,732	6,123	6,036	5,808	4,945	4,476	4,167	3,797	
Month	234,238	196,985	219,230	208,700	208,721	184,002	187,111	180,041	148,356	138,760	124,998	117,705	2,148,847
ROCKLAND:													
Daily average	15	12	12	10	10	12	10	10	10	10	10	10	
Month	460	339	372	304	320	357	312	309	307	311	303	308	4,002
SARATOGA:													
Daily average	810	841	749	880	898	865	861	842	819	811	782	763	
Month	25,115	23,549	23,211	26,408	27,834	25,940	26,702	26,107	24,570	25,141	23,457	23,662	301,696
SOUR LAKE:													
Daily average	1,224	1,221	1,221	1,181	1,359	1,373	1,260	1,232	1,131	1,163	931	974	
Month	37,940	34,186	37,857	35,433	42,127	41,182	39,062	38,203	33,921	36,059	27,926	30,202	434,098
STRATTON RIDGE:													
Daily average	.....	.....	.....	.....	224	108	52	7	.....	.....	.....	.....	
Month	.....	.....	.....	.....	6,940	3,249	1,612	219	.....	.....	.....	.....	12,020
TARKINGTON PRAIRIE:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	65	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,016	2,016
TOMBALL:													
Daily average	.....	.....	.....	.....	16	109	624	952	1,790	1,984	1,350	1,403	
Month	.....	.....	.....	.....	492	3,284	19,354	29,506	53,709	61,510	40,507	43,488	251,850
GARWOOD:													
Daily average	.....	.....	.....	.....	.....	55	13	.....	.....	.....	.....	.....	
Month	.....	.....	.....	.....	.....	1,639	403	.....	.....	.....	.....	.....	2,042
SOUTH LIBERTY:													
Daily average	827	798	966	772	720	725	809	743	609	620	620	587	
Month	25,631	22,340	29,940	23,197	22,328	21,757	24,989	23,037	18,274	19,229	18,607	18,191	267,520
SPINDLETOP:													
Daily average	3,519	3,307	3,540	3,354	3,161	3,311	3,196	3,082	2,822	2,966	2,293	3,840	
Month	109,085	92,598	109,746	100,622	97,997	99,343	99,082	95,531	84,660	91,938	68,790	119,040	1,168,432
WEST COLUMBIA:													
Daily average	3,022	3,480	3,614	4,004	3,698	3,682	3,531	3,478	3,104	2,954	2,533	2,884	
Month	93,684	97,445	112,030	120,124	114,665	110,463	109,454	107,818	93,132	91,577	75,998	89,411	1,215,801
Daily average Texas Gulf Coast	126,013	126,117	143,005	148,048	182,221	176,038	194,518	207,114	193,686	179,984	152,381	156,102	165,736
Total Texas Gulf Coast	3,906,389	3,531,284	4,433,143	4,441,456	5,649,173	5,281,147	6,030,030	6,420,547	5,810,519	5,579,480	4,571,483	4,839,189	60,492,840

(Continued on Next Page)

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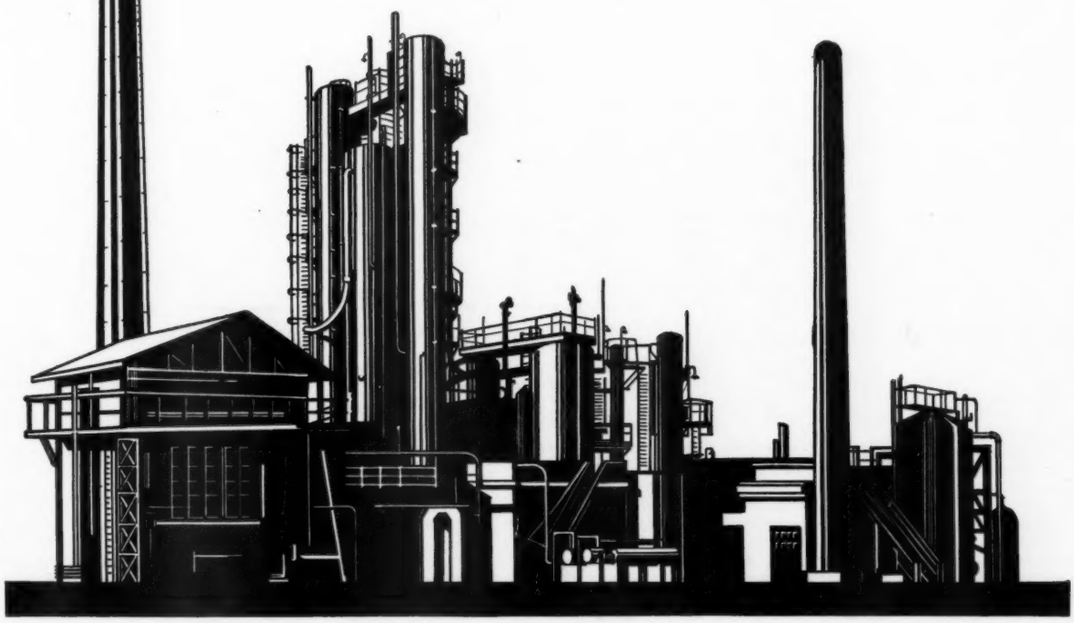

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the prolific production of the Conroe Field, 20 miles to the northeast, is obtained.

Opening of production was preceded by the most sensational lease and royalty plays ever experienced on the Gulf Coast and which followed the finding of sizable gas showings in a wildcat drilled by the Indian Hill Oil Co. in October, 1932. This well was some 6 to 8 miles northeast of the Tomball discovery well but leasing, royalty buying and wildcatting spread actively clear across northern Harris and southern Montgomery Counties. Proven acreage prices were commanded long before any production was found and even after a series of deep dry holes were drilled at various places around the district.

The discovery well was drilled on a geophysical block worked and leased by the Magnolia Petroleum Co. in 1928. Before the completion of the first well, however, an undivided half interest was sold to the Humble Oil & Refining Co. The two companies have been carrying on operations jointly since then. Stanolind Oil & Gas Co., Amerada Petroleum Corp., Continental Oil Co., Skelly Oil Co., the Texas Co. and others have holdings in and around the field.

Development of the field has been more or less a disappointment in that sand conditions so far have been found unfavorable for important production. The structural conditions are present and the field has been spread out over a wide area but sands are thin with oil production spotted and wells comparatively small. The sands carry considerable gas with a very thin interval between the gas-oil contact and the water level.

Since the opening of the field an active drilling program has been carried on and a total of 32 wells have been drilled in the immediate area. Six of these have been dry holes, eight gassers, while the remainder have made oil. Pipe line outlet has been provided by the Humble Pipe Line Co., Magnolia Pipe Line Co. and Stanolind Pipe Line Co.

Louise District

The Louise district of Wharton County figured very conspicuously in coastal drilling activity reports during the year but it was not until December that production was established commercially. The discovery well, Pure Oil Co.'s No. 1 Stewart, Section 25, was completed in a sand at a total depth of 5,983 feet flowing at the rate of 234 bbls. daily. This well, started over a year ago, previously had been drilled to a total depth of 8,076 feet and a number of earlier attempts had been made to complete it.

The Stewart well was one of eight wildcats drilling simultaneously on Pure Oil Co.'s Louise block, all of which were within a radius of a couple of miles. The development undertaken was one of the largest and most unusual single wildcatting projects ever undertaken on the Gulf Coast. The operators have experienced numerous difficulties and, although Louise has been definitely established as a field, the outcome so far has not been entirely favorable. Two other oil wells have been brought in since completion of the discovery well but these also have been small and each is in a different sand, one being at a total depth of 7,143 feet and the other at 6,467 feet. A fourth well, No. 1 Houston, recently blew out from a sand at 6,451 feet and ran wild for a week. It was estimated to be making at least 100,000,000 feet of gas daily and considerable fluid. The well was brought under partial control and finally killed and now is in process of completion. The other tests started are all down below 6,000 feet, two drilling and the others shut down temporarily.

Cleveland Discovery

Interest at the close of the year was centered on the Cleveland, or Tarkington Prairie district of northwestern Liberty County, where Gulf Production Co. brought in a wildcat producer during the holidays. This well, No. 1 Kirby Lumber Co., J. Pleasant Survey, on a 24-hour gauge, flowed approximately 1,300 bbls. of 40 gravity pipe line oil from 8 feet of sand at 5,716-24 feet.

General assumption is that another major pool of the Conroe type has been opened by this well. The fact that Gulf owns approximately 18,000 acres in that immediate area and that there are comparatively few other lease owners will keep development well under control. In addition the State Railroad Commission already has issued temporary regulations limiting the drilling to one well in 20 acres with a spacing of 933 feet between wells and no well to be located less than 466 feet from the property line.

This, however, is not preventing an active exploration program in that area. Gulf Production Co. already has made locations for three additional wells, two of which will be drilled at once, one being 2,000 feet south of the discovery well and one 4,000 feet north. Two miles south of the well, Brown and Wheeler have rigged up for a test, a key location, while 6 miles south the same operators are drilling on another. Seven miles west, across the line in Montgomery County, Steen Drilling Co. is starting a wildcat in the William Barker Survey which will determine the possible extent of the field in that direction. That northern Liberty County and the area extending across the line into Montgomery County will be the scene of much wildcatting during the next few months is indicated.

The sand is in the Cockfield, the same horizon which is productive at Conroe.

Louisiana

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
ANSE LA BUTTE:													
Daily average	55	55	49	47	47	31	47	47	45	46	43	34	
Month	1,700	1,545	1,511	1,415	1,459	942	1,451	1,447	1,350	1,426	1,283	1,011	16,540
CAILLOU ISLAND:													
Daily average	.....	.....	.....	.....	.....	.....	.....	2,013	2,310	2,282	2,141	2,319	
Month	.....	.....	.....	.....	.....	.....	.....	62,407	69,308	70,737	64,234	71,890	338,576
BLACK BAYOU:													
Daily average	673	649	628	646	529	474	485	1,300	1,308	1,275	1,106	926	
Month	20,867	18,177	19,462	19,384	16,393	14,220	15,034	40,306	39,236	39,518	33,180	28,712	304,489
CAMERON MEADOWS:													
Daily average	159	45	50	48	50	51	51	50	41	317	399	323	
Month	4,923	1,267	1,557	1,436	1,555	1,523	1,590	1,556	1,236	9,830	11,967	10,018	48,458
CHOCTAW:													
Daily average	311	294	280	268	256	250	239	255	327	316	286	266	
Month	9,647	8,230	8,685	8,046	7,930	7,487	7,407	7,897	9,803	9,804	8,584	8,238	101,758
DARROW:													
Daily average	.....	.....	.....	.....	.....	35	.....	.....	.....	.....	.....	.....	
Month	.....	.....	.....	.....	.....	1,044	.....	.....	.....	.....	.....	.....	1,044
EDGERLY:													
Daily average	156	154	155	160	129	109	102	103	130	156	197	208	
Month	4,832	4,318	4,801	4,802	3,997	3,281	3,151	3,197	3,904	4,836	5,911	6,449	53,479
GUEYDAN:													
Daily average	592	490	431	412	443	408	422	578	472	451	350	324	
Month	18,358	13,726	13,366	12,350	13,739	12,238	13,082	17,921	14,162	13,970	10,512	10,032	163,456
HACKBERRY (East):													
Daily average	7,268	6,301	4,490	4,535	3,829	4,399	5,064	4,415	5,696	4,870	4,654	4,754	
Month	225,304	176,423	139,198	136,055	118,696	131,959	156,993	136,865	170,892	150,982	139,623	147,373	1,830,362
HACKBERRY (Old):													
Daily average	914	974	717	626	668	548	493	524	503	460	428	369	
Month	28,338	27,274	22,223	18,775	20,702	16,441	15,283	16,242	15,086	14,252	12,831	11,444	218,891
IOWA:													
Daily average	2,482	2,409	4,018	7,501	7,825	8,611	10,383	12,175	12,908	13,655	14,905	13,519	
Month	76,946	67,450	124,554	225,038	242,570	258,327	321,868	377,413	387,247	423,306	447,155	419,088	3,370,962
JENNINGS:													
Daily average	860	823	852	924	1,410	1,294	1,154	1,345	1,334	1,175	925	902	
Month	26,665	23,041	26,414	27,724	43,716	38,806	35,780	41,684	40,020	36,419	27,758	27,956	395,978
LAKE BARRE:													
Daily average	7,940	9,180	9,070	10,627	10,196	9,509	9,494	8,682	7,576	7,392	7,188	6,659	
Month	246,148	257,045	281,175	318,800	316,074	285,276	294,322	269,140	227,270	229,144	215,644	206,430	3,146,468
LAKE PELTO:													
Daily average	60	58	57	54	45	58	53	53	42	41	42	40	
Month	1,865	1,620	1,761	1,616	1,395	1,755	1,643	1,636	1,264	1,272	1,253	1,239	18,319
LAKE WASHINGTON:													
Daily average	284	370	268	167	159	374	329	477	660	614	548	513	
Month	8,808	10,350	8,306	5,003	4,923	11,227	10,207	14,788	19,787	19,041	16,440	15,909	144,784
LEESVILLE:													
Daily average	648	469	245	1,514	1,693	1,021	754	700	374	1,416	1,555	1,748	
Month	20,082	13,132	7,598	45,424	52,489	30,617	23,366	21,711	11,220	43,888	46,654	54,196	370,377
LOCKPORT:													
Daily average	3,199	2,812	3,520	3,065	2,314	2,269	2,119	2,301	2,674	2,526	2,391	2,205	
Month	99,161	78,730	109,120	91,945	71,738	68,080	65,695	71,323	80,212	78,304	71,719	68,353	954,380
PORT BARRE:													
Daily average	2,609	2,189	3,363	3,829	4,067	3,503	3,210	2,618	2,277	2,140	2,039	2,047	
Month	80,877	61,296	104,250	114,877	126,071	105,076	99,511	81,152	68,306	66,349	61,182	63,455	1,032,402
SORRENTO:													
Daily average	45	51	42	41	28	44	52	41	41	36	31	35	
Month	1,390	1,423	1,513	1,227	864	1,316	1,606	1,273	1,236	1,116	932	1,084	14,980
STARKS:													
Daily average	1,427	987	848	772	1,041	1,123	750	801	848	827	808	790	
Month	44,239	27,631	26,284	23,152	32,277	33,689	23,247	24,836	25,440	25,650	24,227	24,500	335,172
SULPHUR:													
Daily average	842	927	1,481	1,913	2,467	3,298	3,711	3,053	3,323	2,841	2,556	2,818	
Month	26,106	25,953	45,914	57,386	76,473	98,949	115,042	94,651	99,682	88,062	76,688	87,349	892,255
SWEET LAKE:													
Daily average	590	558	548	545	511	508	1,126	1,498	1,362	1,270	1,179	1,110	
Month	18,296	15,628	16,982	16,345	15,849	15,240	34,911	46,440	40,874	39,377	35,379	34,415	329,736
VINTON:													
Daily average	3,882	3,587	3,485	3,540	3,277	3,254	3,288	3,678	4,349	4,410	4,043	3,677	
Month	120,340	100,430	108,037	106,201	101,581	97,616	101,933	114,021	130,462	136,716	121,293	113,981	1,352,611
WELSH:													
Daily average	51	50	50	50	50	49	50	49	45	46	44	47	
Month	1,581	1,404	1,552	1,505	1,555	1,460	1,559	1,526	1,346	1,421	1,320	1,459	17,688
WHITE CASTLE:													
Daily average	507	495	491	486	480	466	469	469	472	470	801	860	
Month	15,711	13,850	15,220	14,570	14,876	13,992	14,550	14,528	14,168	14,562	24,036	26,654	196,717
Daily average Louisiana Gulf Coast	35,554	33,927	35,145	41,770	41,514	41,685	43,846	47,221	49,117	49,032	48,659	46,493	42,876
Total Louisiana Gulf Coast	1,102,184	949,943	1,089,483	1,253,076	1,286,922	1,250,561	1,359,231	1,463,960	1,473,511	1,519,982	1,459,800	1,441,235	15,649,888
Daily average total Gulf Coast	161,567	160,044	178,150	189,818	223,745	221,790	238,567	254,339	242,801	229,016	201,040	202,595	208,613
Month total Gulf Coast	5,008,573	4,481,227	5,522,626	5,694,532	6,936,095	6,531,707	7,389,261	7,884,507	7,284,030	7,099,462	6,031,282	6,280,424	76,143,728
Total 1932	4,178,761	3,722,638	3,988,104	4,002,141	4,415,809	4,244,365	4,490,286	4,698,324	4,990,464	4,848,967	4,843,585	4,973,828	53,395,758
Total 1931	5,598,347	4,836,692	5,081,815	5,354,911	5,499,710	4,881,273	4,684,148	4,499,463	4,268,397	4,499,371	4,546,265	4,573,216	58,492,995
Total 1930	5,881,489	5,619,270	6,105,265	5,980,067	6,181,740	6,214,648	6,320,149	6,214,883	5,824,543	5,800,475	5,415,591	5,642,394	71,200,514
Total 1929	4,344,223	3,959,613	4,586,507	4,705,904	4,673,923	4,484,434	4,749,161	4,956,783	5,007,570	5,486,792	5,591,438	5,554,487	58,101,845
Total 1928	3,796,856	3,652,390	3,796,816	3,760,253	4,185,544	4,114,796	4,378,872	4,188,943	3,948,578	3,842,655	3,996,644	4,200,073	47,868,345
Total 1927	5,232,366	4,409,580	4,837,581	4,420,560	4,762,127	4,612,620	4,432,535	4,301,901	4,258,890	4,379,432	4,176,450	4,350,044	54,174,086
Total 1926	3,023,877	2,820,608	3,034,683	2,842,050	3,208,721	2,849,970	3,785,069	5,287,019	5,655,960	5,433,029	5,285,730	5,570,607	48,806,875

As the bottom is only 28 feet in that formation it is likely that the sand corresponds to what is known as the Upper Cockfield sand at Conroe. The main producing sand at the latter field is found some 200 feet in the Cockfield. Magnolia Pipe Line Co. has made connection with the well by a 4-inch line from its trunk line, which passes within 1,500 feet of the well, and is buying the oil at $1 per barrel. An allowable of 500 bbls. has been placed temporarily on the field and until the completion of additional wells this amount can be taken from the one producer.

New Polk County Field

Dick Schwab, discoverer of the Livingston Field in southern Polk County, found what appears to be another new field located about 10 miles southeast of the former field. This operator's No. 1 Kirby and West, located in the Geraldus Thomas Survey, encountered considerable gas showing oil in a Cockfield sand at a total depth of 4,771 feet. A number of unsuccessful attempts were made to complete this as a producer but because of mechanical difficulties and inability to shut off water, the hole was abandoned in October. A second test, No. 2 Kirby, located 563 feet south and 330 feet west of the first, was started at once. This drilled to 4,850 feet, where in sand at 4,819-29 feet it made on test an estimated 25,000,000 to 50,000,000 feet of gas with about 250 bbls. of fluid, about 50 per cent oil, daily. Except for short tests, the well has been shut in since then pending completion of negotiations for a trade.

The Livingston Field proper, opened late in 1932, received active development during 1933, resulting in the proving up of a productive area of comparatively small proportions. The field now has been fairly well defined at nearly every point, although since January 1 a test located three-quarters of a mile northeast of production picked up a sand showing oil and gas at a total depth of 4,242 feet and offers some possibility for an extension. A total of 24 wells were drilled during 1933, of which 11 were failures. Early development in the field was the incentive for an intensive leasing and royalty play extending eastward from the productive limits but interest soon was killed by several dry holes. Humble Oil & Refining Co.'s attempt to prove up its geophysical block west of the Livingston Field also met with failure.

Hull Dome Activity

Another center of activity was the Hull Dome in Liberty County, where development of the Jackson sands along the south flank and out from the old shallow sand production was revived by a deep test drilled by Miramar Oil Corp. on the southeast side of the dome. Previous Jackson and deep production at Hull had been confined to a small area on the southwest side of the dome, some 2,000 feet from the Miramar well. This well was completed in sand and shale formation at a total depth of 4,344 feet and the nature of its production was the incentive for an extensive play and rush of drilling to prove up the sand all along the south flank, which has resulted in the building up of some prolific and consistent production.

Barbers Hill is another of the old domes at which active drilling has been carried on. In reality, however, this dome has been active steadily for several years. While a lot of the drilling consists of working over and deepening of old wells, there also has been considerable new drilling undertaken in further proving up the extent of subsalt potentialities. Approximately 15 rigs have been kept busy at Barbers Hill the entire year.

Iowa Field

The Iowa Field, on the Calcasieu-Jefferson Davis Parish line, in Louisiana, rose to a position of prominence and importance during 1933. It now is the largest field in Louisiana and the third largest on the Gulf Coast. Production was opened in October of 1931, development, which has been in the hands of a few large companies, has been steady and under complete control and it has not been until the past year that the potential extent of the field has been recognized generally. Two companies, Magnolia Petroleum Co. and Shell Petroleum Corp. control the bulk of the present field in large blocks, but the latter part of the year Barnsdall Oil Co. entered the field and a tract "farmed" out to it and has completed two wells just east of production. Gulf Refining Co. and others also have acreage which now is considered in the picture. Seventeen wells have been completed in the field to date, 14 of which are in the deep horizon at 6,900-7,000 feet in the Marginulina zone of the Oligocene; one, recently completed, in a new Miocene sand at 4,670 feet; another in a 5,500-foot Miocene sand making largely gas; and within the last couple of weeks, a well located at the extreme south end of the field has been completed in a 6,700-foot sand. While under proration restrictions and efficient flowing practices production has been cut under 14,000 bbls. daily, the field is capable of making several times that amount without injury and with only slight opening of the wells.

TEXAS

Summary of Gulf Coast Completions in 1933

Field—	Comp.	Prod.	Abd.	Gas
Arriola	4	2,620	2	0
Barbers Hill	64	51,329	9	0
Batson	10	970	5	0
Big Creek	4	1,430	1	0
Blue Ridge	4	1,297	0	0
Buckeye	3	3,850	1	0
Clay Creek	7	128	5	0
Conroe	615	1,048,829	23	6
Damon Mound	11	467	3	0
Esperson	9	1,480	3	0
Fannett	6	2,478	3	0
Garwood	6	400	5	0
Goose Creek	6	1,255	1	0
Greta	94	41,969	6	1
Hankamer	3	185	2	0
High Island	17	7,992	4	0
Hockley	3	350	2	0
Hull	47	21,335	12	0
Humble	13	1,106	3	1
Keeran	3	630	1	0
Liberty	3	450	0	0
Livingston	24	7,751	11	0
Lost Lake	3	0	3	0
Louise	1	234	0	0
Manvel	12	4,364	4	1
Markham	3	1,320	0	0
McFaddin district	9	204	6	1
Moss Bluff	3	0	3	0
Mykawa	5	900	2	0
Nash	2	25	1	0
Orange	3	25	0	0
Orchard	3	1,664	1	0
Pierce Junction	23	9,780	4	0
Pledger	1	44	0	0
Port Neches	4	1,736	1	0
Raccoon Bend	6	2,304	1	0
Refugio	8	1,115	0	0
Saratoga	14	335	1	0
Sour Lake	2	175	1	0
Spurger	6	0	5	1
Stratton Ridge	4	2,000	3	0
Sugarland	1	50	0	0
Thompson	97	108,088	6	0
Tomball	33	8,242	7	10
West Columbia	4	1,810	1	0
Miscellaneous	156	0	151	5
Total 1933	1,359	1,342,716	303	26
Total 1932	692	324,942	268	19
Difference	667	1,017,774	35	7

LOUISIANA

Field—	Comp.	Prod.	Abd.	Gas
Black Bayou	1	838	0	0
Caillou Island	1	2,122	0	0
Cameron Meadows	2	1,500	1	0
Choctaw	3	120	2	0
Darrow	4	40	3	0
Dog Lake	1	0	1	0
Edgerly	4	135	2	0
Evangeline	3	110	1	0
Gueydan	7	886	5	0
Hackberry (East)	24	10,418	12	1
Hackberry (old)	3	0	3	0
Iowa	16	9,392	3	1
Jennings	7	930	5	0
Lake Barre	12	9,135	5	0
Lake Pelto	2	0	2	0
Lake Washington	13	1,115	7	0
Leesville	8	9,395	1	0
Lockport	9	4,005	1	0
Port Barre	12	7,135	3	0
Sorrento	4	0	4	0
Starks	9	2,926	6	0
Sulphur	16	10,399	3	0
Sweet Lake	1	1,365	0	0
Vinton	12	3,049	4	0
White Castle	2	572	1	0
Miscellaneous	49	2,292	48	0
Total 1933	225	77,879	123	2
Total 1932	189	90,516	94	1
Difference	36	12,637	29	1
Total Gulf 1933	1,584	1,420,595	426	28
Total Gulf 1932	881	415,458	362	20
Difference	703	1,005,137	64	8

Completions by Months

Month—	Comp.	Prod.	Abd.	Gas
January	128	141,113	32	1
February	130	133,168	29	2
March	177	191,911	54	1
April	125	151,152	20	1
May	129	139,429	30	2
June	98	94,530	30	1
July	128	116,701	34	2
August	132	88,214	42	6
September	118	93,618	32	3
October	145	92,387	46	2
November	138	103,321	30	2
December	136	85,051	37	5
Total 1933	1,584	1,420,595	426	28

Extensive Wildcatting

In addition to the new fields and production actually opened during 1933, indications of other fields were shown in a half dozen or so other areas as a result of the extensive wildcatting play which was carried on. Among these areas was the Lake View prospect of Shell Petroleum Corp., in Wharton County; East Stratton Ridge, Brazoria County; Carlos, in Grimes County; Roanoke, Jefferson Davis Parish, Louisiana; Pilant Lake, Fort Bend County; the Nursury district, in northern Victoria County; northern Refugio County, and other places where of more or less important indications have been found.

On the Lake View prospect, a wildcat drilled by Smith & McDonald on a block owned by Shell Petroleum Corp., encountered a number of gas sands and drill stem tests indicated wells could have been made. The hole was drilled to a total depth of 6,875 feet in heaving shale after an unsuccessful attempt to make a well at 6,442 feet, and then was plugged to 3,850 feet where it has been standing since then. A second test, located east of the first, was drilled to a total depth of 7,607 feet without getting anything.

Wharton County was one of the most actively wildcatted and leased counties on the Gulf Coast during the year. A half dozen different wildcats on as many different prospects were drilled although so far only Louise and Lake View have turned out anything. Virtually the whole county has been placed under lease, with many of the solid blocks of the larger companies joining each other.

Amerada Petroleum Corp. and Rycade Oil Corp. brought in a well making initially 96 bbls. an hour in their No. 3 Seaburn at East Stratton Ridge, a geophysical dome adjoining to the east the old Stratton Ridge Dome, but this well went to water quickly and after several attempts to rework it as a producer it was abandoned. It first was brought in in sand at 4,405-4,500 feet but later was plugged back 20 feet. Two additional tests have been drilled since then but these have been dry. Outside of this well, the only production which has ever been found at Stratton Ridge was some shallow oil drilled a number of years ago on the old Stratton Ridge Dome.

Grimes County

A wildcat estimated initially as good for 10,000,000 feet of gas daily was brought in on the Carlos prospect, Grimes County. This well, Petroleum Southwest Co.'s No. 1 Greer, was in sand at 2,750 feet. Because of water, the well was killed and the hole was deepened and later abandoned. This was the first actual production in Grimes County, which borders on the west Montgomery County, in which Conroe is located. A number of wildcats have been drilled in Grimes County on various prospects and showings have been found but not in sufficient volume to justify testing.

On the Nursury block in northern Victoria County, lower coastal country, Quintana Oil Co.'s No. 1 McCormic, S.A.&M.C. Survey, Section 3, made a high pressure gas well at 6,150 feet, taking in 700 feet of pay through the Yequa and Cook Mountain. It was killed, however, and deepened to 7,400 feet for a test of the Mount Selman, but was abandoned there as dry.

The same company found indications of still another new field, located in the Pilant Lake district of Fort Bend County, on the Brazoria County line, when its No. 1 Great Southern, a wildcat drilled on a geophysical block, picked up a sand showing oil and gas at a total depth of 6,320 feet. In a test it made some gas and considerable water and then was deepened, going to a total depth of 8,129 feet, where it was abandoned. A second test now is drilling.

In northern Refugio County, Gulf Production Co.'s No. 2 O'Connor, C.E.P.&I. M. Survey No. 40, the second test drilled by the company on its large block on the Refugio-Goliad County line, came in as a high pressure gas well in sand at 5,705-07 feet early in the year. Opened after being shut in a long period it made salt water and then was deepened and abandoned. No additional tests have been drilled.

Roanoke Prospect

On the Roanoke geophysical prospect in Jefferson Davis Parish, Louisiana, Humble Oil & Refining Co. has made several attempts to complete a well in its No. 2 DeVilbiss in sands found below 8,200 feet with the present depth below 8,400 feet. If commercial, this will be the deepest production on the Gulf Coast. Although more than a half dozen tests have been drilled at Roanoke, several of which have had important showings and sands and out of one of which some oil was swabbed, there has never been any commercial production. This is the second test drilled by Humble Oil & Refining Co., previous development having been done by the former Vacuum Oil Co., the original owner of the prospect.

First commercial production at Hockley, Harris County, one of the oldest known domes on the coast, was obtained in John Deering's No. 2 Warren, completed in February estimated initially at 300 bbls. daily from a sand at 2,411-26 feet. The well settled to around 50 bbls. daily. Location of the well is on the northwest flank. A couple of other short-lived wells were completed in 1920 and 1924, these being on the northeast flank. A total of more than 70 tests have been drilled at Hockley. Since completion of the producer a couple of other tests have been drilled without getting production.

East Hackberry

Production at East Hackberry, Cameron Parish, Louisiana, was extended to the extreme northeast flank of the dome by the Texas Co.'s No. 10-B State, which came in flowing 2,600 bbls. daily from sand at 7,267 feet. This dome previously had been producing from flank sands along the south and northwest sides and from shallow sands and cap rock on top the dome.

Four additional domes were definitely proved up during the year by the finding of salt. These include Cameron Meadows, Cameron Parish, Louisiana; Darrow, Ascension Parish, Louisiana; Esperson, Liberty County, and Ferguson Crossing, Grimes County. The first three already had been proven productive, Esperson, in particular, having been established as an important field. At Ferguson Crossing there has been no production, the test finding salt, and drilled by Humble Oil & Refining Co., being the first.

Many Extensions

Thompson, in Fort Bend County, Manvel, Brazoria County, and numerous other fields and domes scattered over the Gulf Coast received important new development and extension of proven territory or opening of new sands. The possibilities of still additional new discoveries both around the older fields and in the extensive undeveloped wildcat potentialities continued to draw an influx of oil companies and operators from other districts. Crude advances and higher prices for Gulf Coast the latter part of the year have been an inducement to new activity in development of new production and exploration for additional crude reserves. There has been no abatement in the leasing and wildcatting play which has been going on for over a couple of years and particularly since the opening of Conroe and while there have been several apparent lulls, these have been only of short duration and each has been followed by new waves of activity, in which Gulf Coast

(Continued on Page 82)

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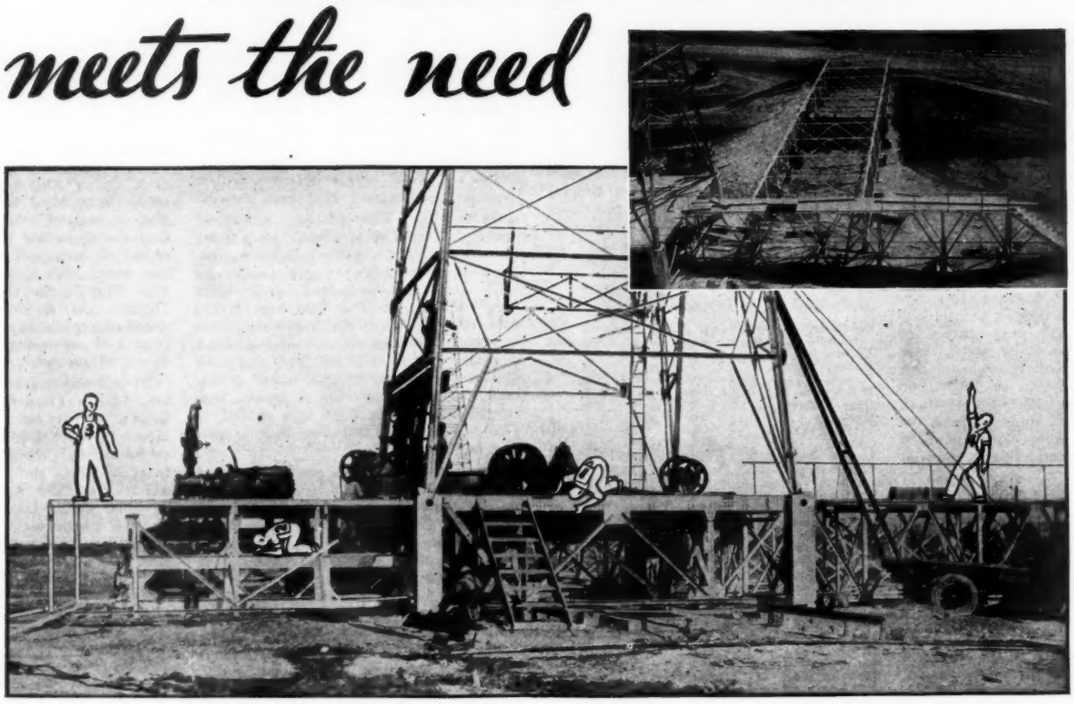

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Year of Unsettled Conditions in California Field Held Back Production and Lowered Prices

By L. P. STOCKMAN
Staff Correspondent, California Fields

The new year, in contrast with the generally unsettled conditions that prevailed on the Pacific Coast during the greater part of 1933, shows more promise of stability from a producing and marketing standpoint, and California executives, for the first time in several years, view the future with equanimity.

Due to restricted exploration work, no important discoveries were made in 1933. Mountain View and the Middle Dome of Kettleman Hills were definitely proved up as new fields during the early part of the year, however, and both are expected to prove important factors in future production. The Hogan Petroleum Co. proved up the Mountain View Field by completing No. 1 Wharton as a commercial producer flowing 2,750 bbls. per day from 5,864 feet in May, 1933. This was the first commercial producer to be finished in the Mountain View Field, although the Shell Oil Co.'s No. 1 Porter Day indicated the existence of a substantial accumulation in September, 1930. The Shell was not successful in developing production as a result of its pioneering work as the company decided to conduct a deep test before undertaking development of the field. No. 1 Porter Day was accordingly deepened but later plugged back following the failure to develop commercial production in a lower zone. The company was never able to recomplete it, however, and the property was subsequently subleased to the Hogan Petroleum Co. for future development.

Mountain View

The Mountain View Field is located approximately 10 miles southeast of the business district of Bakersfield. The field is one of three topographic highs on the Bear Mountain fault zone but, unlike Los Angeles Basin fields on the Newport-Beverly fault zone where the topography is very pronounced, surface indications in the Mountain View Field are almost negligible. The Mountain View Field is now undergoing aggressive but conservative drilling and consequently the trend of production and the field's areal extent should be determined early in 1934. It is significant to note, however, that recent developments tend to indicate that the apex of the structure is located northwest of the Hogan Petroleum Co.'s discovery well.

The Mountain View Field of Kern County may ultimately become an extremely important field from a production standpoint despite the small amount of natural gas produced and relatively low pressures encountered. Both the Kern River series and underlying Santa Margarita have been found productive in the Mountain View Field up to date. The Mohawk Petroleum Co. has developed commercial production in the Clendennen well in the lower portion of the Kern River series, while the Hogan Petroleum Co. is producing from the underlying Santa Margarita. The productiveness of these two formations strongly indicates a possibility that deeper drilling may open up additional productive zones. If the geological column in the Mountain View Field is normal, deeper drilling should enable wells to test out the Temblor formation of Miocene age and the Tejon of Eocene age. Both of these formations have been found productive in the North Belridge Field and may consequently prove productive at Mountain View. The Shell Oil Co. logged oil sand in No. 1 Porter Day at 8,419 feet in May, 1931, although production was not obtained. The coring of this oil member is of special importance in as much as No. 1 Porter Day is an edge well in the Santa Margarita and therefore does not constitute a conclusive test of deep zone possibilities. The showings found by the Shell at 8,419 feet may ultimately prove of considerable importance nearer the apex of the structure.

CALIFORNIA FIELD OPERATIONS BY MONTHS FOR YEAR 1933

1933—	Wells completed — Number	Wells completed — Bbls. daily	Wells — Drilling	Wells — Producing	Abandoned — Drillers	Abandoned — Producers	New rigs
January	12	6,382	98	8,948	9	23	17
February	19	17,109	117	8,953	6	27	23
March	10	9,393	108	8,940	6	8	12
April	14	22,315	104	8,912	16	36	22
May	19	17,405	103	9,023	14	12	27
June	11	5,374	114	8,949	11	24	27
July	22	25,804	124	9,006	17	20	37
August	17	10,381	148	9,110	15	9	58
September	25	16,933	156	9,240	16	11	40
October	36	45,672	141	9,366	23	15	23
November	32	53,293	138	9,783	8	22	35
December	31	44,043	137	10,158	22	8	32
Total 1933	248	274,104	...	....	163	215	354
Total 1932	184	156,823	...	....	191	172	219
Total 1931	246	364,434	...	....	238	177	259
Total 1930	755	584,521	...	....	254	320	964
Total 1929	910	1,307,496	...	....	314	212	1,306

Kettleman Middle Dome

Although the existence of a substantial accumulation of oil and gas was proved up in 1932, the Kettleman Middle Dome Field did not become a proved entity until the Standard Oil Co. completed No. 6-29 V in April, 1933. This well was given a preliminary production test in April, 1932, but was killed late in May in order that it might be drilled ahead. In April and May, 1932, the well produced 6,687 bbls. and 3,850 bbls., respectively, but no further production was secured until May, 1933, practically a year later. The Petroleum Securities Co. was the first operator to reveal the existence of oil and gas in commercial quantities in the Middle Dome of Kettleman Hills but the discovery well, No. 1 Burbank, was never completed due to mechanical trouble. The Standard started exploration work in the Middle Dome following the showing of the Petroleum Securities well, but this project, like its predecessor, ran into mechanical difficulties and for a time its completion seemed almost impossible. The company persevered, however, and was rewarded when No. 6-29 was brought in flowing 1,250 bbls. of exceptionally clean 53.1 gravity oil and approximately 30,000,000 feet of natural gas per day from 8,406 feet.

During 1933, operators holding potentially productive acreage in the Kettleman Middle Dome Field agreed on a plan for future development of the field and work was started on the first well late in December, 1933. The unification of drilling and production in the Middle Dome differs somewhat from the unit plan of development in the Kettleman

California Crude Oil Production, January-December, 1933, Inclusive

(Barrels of 42 U. S. gallons)

	January	February	March	April	May	June	July	August	September	October	November	December	Total	Daily
Northern fields—														
Coalinga	338,359	296,684	327,275	314,148	339,064	322,463	333,431	324,746	387,526	458,785	512,948	468,614	4,424,043	.....
Elk Hills	376,574	361,894	394,647	386,196	390,489	380,231	398,927	399,303	371,651	361,357	324,987	342,432	4,488,688	.....
Fruitvale	144,607	141,047	156,592	147,191	153,079	138,740	131,489	134,983	122,965	136,030	130,264	135,818	1,672,805	.....
Kern River	269,647	252,613	272,990	263,071	268,438	271,543	275,396	281,524	263,169	250,143	282,817	257,422	3,208,773	.....
Kettleman Middle Dome	.....	.....	.....	9,128	26,462	13,326	15,954	20,741	16,470	17,779	15,223	16,896	151,979	.....
Kettleman North Dome	1,794,516	1,610,728	1,845,562	1,787,599	1,893,947	1,841,233	1,956,206	1,915,785	1,882,133	1,853,124	1,452,533	1,638,675	21,472,041	.....
Lost Hills-Belridge	279,807	261,714	291,248	272,325	288,253	222,847	223,120	235,349	233,458	301,377	259,929	336,446	3,205,873	.....
McKittrick	54,021	48,760	52,540	50,811	53,955	51,692	53,531	53,387	51,379	55,751	56,225	67,077	649,129	.....
Midway-Sunset	1,486,925	1,325,453	1,468,791	1,411,176	1,453,637	1,386,041	1,433,966	1,471,004	1,476,096	1,509,181	1,541,285	1,576,567	17,540,122	.....
Mountain View	.....	.....	.....	.....	25,555	23,653	17,896	13,243	12,465	17,732	28,720	92,492	231,756	.....
Mount Poso	241,279	229,336	273,110	239,426	258,897	238,360	287,952	253,169	262,543	251,130	255,557	260,067	3,050,826	.....
Round Mountain	70,479	81,398	93,042	89,773	88,223	80,573	82,031	91,383	92,819	94,112	105,921	148,859	1,118,913	.....
Wheeler Ridge	14,522	13,299	14,149	14,178	14,943	14,172	14,315	14,365	13,737	13,800	13,459	13,874	168,813	.....
Coastal fields—														
Capitan	.....	.....	915	480	541	368	395	567	369	304	7,755	12,928	24,622	.....
Elwood	421,506	376,949	414,928	382,802	415,103	408,219	435,820	405,566	434,168	432,441	405,147	385,329	4,918,488	.....
Rincon	65,230	57,790	62,458	60,545	60,092	56,676	62,404	61,100	52,821	46,940	44,196	50,176	680,428	.....
San Miguelito	29,075	27,073	31,842	32,295	35,348	34,684	35,128	37,028	36,373	31,617	32,177	27,919	390,559	.....
Santa Barbara	13,002	18,686	21,718	20,429	26,531	25,761	22,835	24,021	19,978	20,639	18,324	19,762	251,686	.....
Santa Maria	82,363	77,916	89,380	82,860	77,483	73,045	99,540	102,386	109,212	141,391	158,919	153,096	1,247,591	.....
Summerland	3,005	2,824	3,101	2,563	2,080	3,027	2,671	2,950	2,419	2,251	2,309	2,149	31,349	.....
Ventura Avenue	1,132,807	1,044,190	1,123,484	976,187	1,012,023	992,258	1,021,291	1,105,369	1,094,178	1,080,535	959,727	1,033,598	12,575,647	.....
Ventura-Newhall	94,971	88,027	99,317	96,747	101,964	97,554	101,624	97,871	103,166	100,706	115,297	107,261	1,204,505	.....
Watsonville	1,937	1,750	1,887	1,725	1,860	1,800	1,860	1,860	1,800	1,860	1,800	1,860	21,999	.....
Southern fields—														
Coyote	302,629	276,287	236,279	340,001	308,331	300,240	314,787	310,648	316,397	318,457	336,756	323,327	3,694,139	.....
Dominguez	568,885	506,278	395,010	548,242	607,449	571,602	622,992	633,756	600,814	593,734	396,640	581,213	6,626,615	.....
Fullerton (Brea Olinda)	238,191	217,615	212,072	231,365	231,300	224,627	232,513	236,209	263,118	292,576	294,266	290,802	2,964,654	.....
Huntington Beach	798,346	713,884	641,386	834,453	903,219	919,471	1,157,432	1,505,365	1,155,471	1,287,957	1,686,194	1,497,311	13,100,489	.....
Inglewood	378,353	339,469	304,001	384,808	372,630	355,875	367,965	356,523	344,162	331,562	243,917	280,707	4,059,972	.....
Lawndale	7,674	7,480	8,242	7,652	6,815	6,999	6,454	6,508	6,413	5,441	4,348	5,134	79,460	.....
Long Beach	2,125,392	1,962,927	1,924,747	2,211,282	2,271,496	2,236,377	2,309,898	2,288,929	2,008,894	1,819,931	1,742,251	1,922,925	24,825,049	.....
Los Angeles-Salt Lake	27,305	25,761	24,684	26,424	26,494	27,254	27,355	27,160	25,582	26,023	26,977	22,782	313,811	.....
Montebello	145,165	131,828	125,738	160,116	149,425	141,298	167,474	182,780	192,211	189,802	186,485	160,174	1,932,590	.....
Newport	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Playa Del Rey	397,026	345,403	348,137	363,065	368,118	349,808	350,616	342,596	324,619	314,420	261,651	296,118	4,061,577	.....
Potrero	18,040	16,068	14,173	12,858	10,917	8,811	9,351	10,152	8,432	9,219	11,226	12,178	141,426	.....
Richfield	181,786	172,805	157,823	195,043	198,977	192,875	215,446	232,159	221,022	216,439	250,684	231,459	2,466,518	.....
Rosecrans	91,466	83,867	71,291	93,329	98,267	91,684	92,450	95,370	93,593	89,359	93,133	92,354	1,086,163	.....
Santa Fe Springs	1,694,144	1,471,736	1,509,181	1,617,923	1,669,151	1,619,610	1,667,433	1,658,438	1,489,832	1,423,322	1,144,188	1,303,946	18,268,904	.....
Seal Beach	346,980	311,178	195,081	373,591	379,372	392,751	360,769	356,851	335,883	330,794	279,107	325,102	3,987,459	.....
Torrance	189,604	175,355	179,250	187,402	193,793	191,029	195,358	208,549	211,935	202,726	218,682	228,191	2,381,875	.....
Whittier	34,664	30,971	28,909	33,723	33,912	35,777	34,752	36,848	34,473	34,264	31,535	34,250	404,079	.....
Total	14,460,282	13,107,043	13,414,980	14,262,943	14,817,633	14,344,654	15,140,828	15,536,841	14,673,846	14,665,011	13,933,559	14,767,800	173,125,420	474,316
Daily average 1933	466,461	468,109	432,741	475,431	477,988	478,155	488,414	501,188	489,129	473,065	464,452	476,381	.....	474,316
Daily average 1932	501,037	504,030	502,449	517,481	503,443	470,632	471,856	478,708	478,371	471,360	471,413	470,807	.....	486,688
Daily average 1931	531,798	533,248	527,898	526,785	530,612	521,381	519,139	505,451	506,020	504,903	499,923	501,967	.....	517,340
Daily average 1930	709,137	745,916	635,483	625,625	614,337	600,693	606,517	605,499	599,477	588,518	603,648	573,765	.....	624,931
Daily average 1929	754,385	796,454	784,669	776,502	775,915	820,821	864,407	878,495	870,142	867,586	710,585	700,179	.....	800,161

North Dome Field and appears far more equitable to smaller operators who would in some cases be unable to advance their pro rata share of drilling expenses due to limited finances. The larger companies recognized this condition and willingly agreed to ratify any program that would not prove unduly hard on smaller operators. As a consequence, operators unanimously ratified a plan that contemplates operation of properties in the Middle Dome by a duly incorporated company.

The Middle Dome Association will not be charged with the obligation of drilling for the present as the operating plan provides that the Standard, Petroleum Securities and Bolsa Chica Oil Co. can each, if they choose, drill a second well. Any wells drilled by these operators will become the property of the association as soon as the net return from such wells liquidates the cost of all drilling undertaken in the Middle Dome. This permits these three companies to recover their entire expenditures, including the cost of the first failures. The Bolsa Chica Oil Co., incidentally, was the first operator to develop production in the Middle Dome, but the production of relatively heavy oil secured in the shallow sand precluded economical operation with the result that the well only produced about 3,000 bbls. of nonmarketable oil before being shut down.

Tideland Exploration

Exploitation of state tidelands opposite the Huntington Beach Field by tilting the rotary table when spudding in and subsequently setting one or more whipstocks exerted a pronounced influence on production of crude oil and caused a wild fluctuation of gasoline prices several times during the year. Exploitation of the state tidelands became rather general as the year grew older and state officials subsequently instituted several suits to prevent further drilling and at the same time force operators to pay rather high royalties to the commonwealth. These suits had not been adjudicated at the close of 1933, but it appears quite probable that operators and state officials will get together and agree on a fair rate of royalty at an early date. The situation is somewhat complicated by the fact that operators may be obliged to pay royalties to both the state and landowners of leases except in cases where the property is owned in fee. The operators involved have been quite willing to pay the State of California fair royalty but so far have been unable to agree on terms.

Exploitation of the Huntington tidelands had the tendency to greatly stimulate production of the Huntington Beach Field during 1933. Operators have long recognized the fact that substantial production could be expected as a result of tideland drilling and several concerted attempts were consequently made to secure legal permits for such work. Twice the electorate refused to sanction tideland development due to the possibility that such work might contaminate the bathing beaches. As an alternative, operators began whipstocking wells located on legitimate leases and were successful in finishing a number of large flowing wells. Drilling operations in the Seventeenth Street town-lot area clearly indicated several years ago that commercial production might be expected out beyond the tide line as only about half of the drilling and production contours were located on the land area inside the tide line.

Important Deep Zone

One of the most important developments in California during 1933, from a drilling standpoint, was the discovery of a new deep productive zone in the Montebello Field of Los Angeles Basin by the Universal Consolidated Oil Co., a subsidiary of the Richfield Oil Co. The Universal Consolidated's deep zone discovery, No. 1 Cruz, located in the extreme eastern part of the field, was brought in flowing 900 bbls. of 37.7 gravity oil and approximately 1,200,000 feet of gas per day from 7,010 feet in August, 1933, although the well was not officially completed until the middle of October due to water trouble resulting from a defective cement job. The significance that attaches to this completion lies in the fact that it proves up the Montebello Field for substantial production in the deep zone and tends to indicate that deeper drilling in other Los Angeles Basin fields may be productive of like results.

No. 1 Cruz of the Universal Consolidated is believed to have been bottomed in middle Puente of Miocene age and if subsequent developments confirm this belief it may add a new chapter to the productive geologic column in southern California. The middle Puente has not heretofore produced oil in southern California but if these rocks are commercially productive in the Montebello Field it is logical to assume that similar horizons should also be found productive in some other Los Angeles Basin fields. The importance of such a condition is quite obvious and consequently California operators are expected to watch future developments in the Montebello Field with considerable interest. The transition zone was found in No. 1 Cruz at approximately 5,525 feet and the top of the Miocene was actually cored at 5,580 feet. After drilling 730 feet into the Miocene and finding it blank, the Universal Consolidated suspended drilling operations at 6,310 feet. Work was resumed several months later, however, and the hole carried down to its completion depth, 7,010 feet.

Completion of the Universal Consolidated's No. 1 Cruz definitely proves up the Montebello Field for substantial production in the deep zone and operators have been endeavoring for several months to formulate a conservative development program in order to prevent the field from getting beyond control and seriously impairing the curtailment program. The deep zone discovery well is located rather far out on the east plunge and is consequently an edge well at best. For this reason, it is quite likely that wells drilled nearer the apex of the structure will register substantial production. The probable existence of Miocene production in the Montebello Field has been recognized for a number of years but operators have been rather reluctant to engage in deep zone exploration due to the chronic overproduction situation that has existed in California during the past decade. The middle Puente of Miocene age will probably require deep drilling in most Los Angeles Basin fields, possibly somewhere in the neighborhood of 10,000 to 11,000 feet.

Deep Drilling Record

A new deep drilling record was established in California during 1933, when the North Kettleman Oil & Gas Co. reached a total depth of 10,944 feet in No. 1 Lillis-Welsh, an outpost located in the extreme western end of the Kettleman North Dome Field. The most interesting feature in connection with the depth record is the fact that the well in question seemed almost indefinitely assured of production when the premature explosion of a shot run in to dislodge a fish wrecked the cement job on the 7-inch water string and ultimately complicated a rather simple fishing job. Ed McAdams took it on the chin with a grin and after a short delay resumed drilling operations when the Union Oil Co. advanced $100,000 for a one-half undivided interest in the Lillis-Welsh lease with the stipulation that the money provided must be used for drilling purposes only. The North Kettleman Oil & Gas Co. had redrilled the hole to 10,358 feet at the close of the year, but the original fish seems to have slipped back into the hole and the final status of the well in question will not be determined until some time in 1934. It is the present intention to land another water string as there has been some question as to the effectivness of the original job. The previous record for depth was 10,294 feet chalked up by the Western Gulf Oil Co. in No. 1 Bradley, a wildcat located in the Santa Maria district of Santa Barbara County.

Deepest Commercial Producer

The Associated Oil Co. still holds the record for the deepest producing well in California but may lose this distinction if the North Kettleman Oil & Gas Co. ever reaches bottom in No. 1 Lillis-Welsh in the Kettleman North Dome Field. The Associated's record well, No. 83 Lloyd, in the prolific Ventura Avenue Field, was finished July 12, 1932, flowing 5,245 bbls. of clean 31.7-gravity oil and 4,100,000 feet of natural gas per day from 9,700 feet. The depth of this hole does not indicate that the bottom of the productive formation has been encountered in the Ventura Avenue Field as records indicate that no well located on top of the structure has drilled entirely through the productive formation. Ventura Avenue has the greatest thickness of oil-bearing formation encountered anywhere in California up to the present. It is interesting to note that the Associated's resident geologist in a recent suit testified that less than half of the recoverable reserves of the Ventura Avenue Field had been produced since discovery of the field back in 1912. Several years ago the prediction was made that commercial production would ultimately be developed below 10,000 feet and, while this depth has not yet been attained, it will be reached sooner or later, as it is simply a mechanical condition. That this depth will ultimately be exceeded is evidenced by the fact that the total thickness of the Miocene has not yet been ascertained at Ventura Avenue.

San Miguelito

Drilling operations in the San Miguelito Field of Ventura County during 1933 were of rather disappointing nature due to abandonment of No. 1 Valenzuela of the Honolulu Consolidated as a duster at 7,873 feet. This well encountered a fault at 7,400 feet that resulted in a downward displacement in the formation of 400 feet and definitely marks the outer limits of production in the southern part of the field. The Continental Oil Co. successfully finished a second producing well on the Crubb property during the year but this project, No. 2 Grubb, indicates a very substantial dip on the south flank. As a result of work during 1933, it appears that the Continental Oil Co. controls practically the entire amount of possibly productive acreage and indicated that the field would probably be very limited in scope. The San Miguelito Field is located on the Ventura anticline about midway between the Ventura Avenue and Rincon Fields.

Curtailment Work

Crude oil curtailment in California attained its greatest effectiveness during the latter part of the year, following operation of the code of fair competition for the petroleum industry. Impressed with the co-operative response of producers and the concerted action of gov-

PRODUCTION OF CRUDE BY MONTHS—CALIFORNIA OIL DISTRICTS
(Barrels of 42 U. S. gallons)

Month—	1933 Total bbls.	1933 Daily average	1932 Total bbls.	1932 Daily average
January	14,460,282	466,461	15,532,141	501,037
February	13,107,043	468,109	14,616,862	504,030
March	13,414,980	432,741	15,575,915	502,449
April	14,262,943	475,431	15,524,444	517,481
May	14,817,633	477,988	15,575,741	502,443
June	14,344,654	478,155	14,118,970	470,632
Total first half	84,407,535	466,340	90,944,073	499,679
July	15,140,828	488,414	14,627,550	471,850
August	15,536,841	501,188	14,839,951	478,708
September	14,673,846	489,129	14,351,140	478,371
October	14,665,011	473,065	14,627,663	471,860
November	13,933,559	464,452	14,142,389	471,413
December	14,767,800	476,381	14,595,028	470,807
Total last half	88,717,885	482,162	87,183,721	473,825
Total year	173,125,420	474,316	178,127,794	486,688

CALIFORNIA FIELD OPERATIONS BY DISTRICTS FOR YEAR 1933

Northern districts—	Wells comp. No.	Wells comp. Bbls. dly.	Oil and gas wells* Drlg.	Oil and gas wells* Producing	Wells abd. Drillers	Wells abd. Producers	New rigs
Buttonwillow gas field	4	Gas	...	1	1	...	3
Coalinga	...	.....	...	671	...	8	...
Dudley Ridge gas field	...	.....	1	...	2	...	2
Elk Hills	...	.....	...	197	...	...	...
Fruitvale	10	2,418	2	56	1	1	12
Kern River	...	.....	1	990	3	5	2
Kettleman Middle Dome	...	.....	...	1	...	...	1
Kettleman North Dome	22	101,896	14	40	...	...	24
Lost Hills-Belridge	4	15,299	3	163	...	...	7
McKittrick	...	.....	...	123	1	...	...
Midway-Sunset	9	1,567	2	1,823	2	21	9
Mountain View	7	6,382	3	2	1	...	15
Mount Poso	16	7,395	4	102	7	2	25
Round Mountain	6	1,623	1	26	1	...	5
Wheeler Ridge	...	.....	...	34	...	...	...
Total	78	136,580	31	4,229	19	37	105
Coastal—							
Capitan	...	.....	...	2	...	...	1
Elwood	5	5,307	1	43	1	...	6
Goleta gas field	1	Gas	...	...	1	...	1
Rincon	1	100	1	34	...	...	...
San Miguelito	1	1,540	1	2	1	...	2
Santa Barbara	7	1,139	1	11	1	...	10
Santa Maria	...	.....	...	167	4	1	...
Summerland	...	.....	...	62	...	1	1
Ventura Avenue	8	7,465	7	158	2	...	11
Ventura-Newhall	9	690	11	448	18	12	11
Watsonville	...	.....	...	7	...	...	...
Total	32	16,241	22	934	28	14	43
Southern—							
Coyote	6	4,943	3	90	1	...	9
Dominguez	15	14,370	4	60	1	1	22
Fullerton (Brea Olinda)	...	.....	...	356	...	...	...
Huntington Beach	51	88,402	11	399	...	20	64
Inglewood	...	.....	...	214	1	...	1
Lawndale	1	50	...	7	2	...	1
Long Beach	50	10,756	20	970	10	22	48
Los Angeles-Salt Lake	...	.....	...	179	...	63	...
Montebello	1	965	2	161	...	...	6
Newport	...	.....	...	...	...	...	...
Playa Del Rey	4	401	2	188	9	27	4
Potrero	...	.....	...	12	3	2	...
Richfield	4	425	2	171	1	2	11
Rosecrans	...	.....	...	63	1	2	...
Santa Fe Springs	4	926	1	517	4	12	1
Seal Beach	...	.....	...	109	2	7	1
Torrance	2	45	...	399	1	5	...
Whittier	...	.....	...	141	...	1	...
Miscellaneous	...	.....	26	...	80	...	38
Total	138	121,283	71	4,036	116	164	206
State total	248	274,104	124	9,199	163	215	354

*Monthly average.

Reproduction of the micrograph at the right shows the interlocking of the flakes of the internal reinforcement used by Barrett. By laminating with the waterproofing agent they give Barrett Pipe Enamels unusual toughness and resistance to soil stresses.

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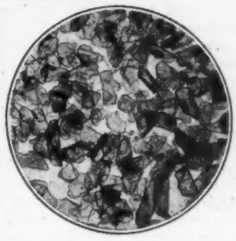

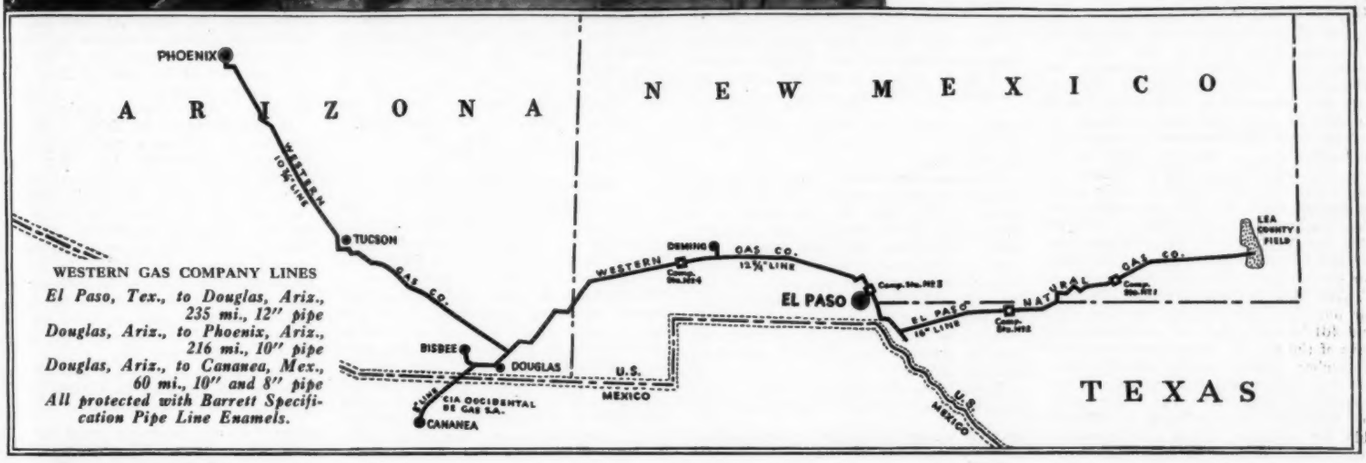
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PIPE LINE ENAMELS

ernment agencies to force compliance with the NRA, executives anticipate improved conditions and better prices for crude and refined oil provided no cessation in enforcement work occurs. Several changes were made in the allowable production of the State during 1933 but operators only met the quota in one month. This was during March when an earthquake forced a compulsory shutdown in a number of wells. During January, 1933, the State was given an allowable of 441,000 bbls. per day but the best that operators could do was 466,461 bbls. During the next three months, February, March and April, the daily quota was fixed at 440,000 bbls. Actual production during this period was 468,109 bbls., 432,731 bbls. and 475,431 bbls. per day, respectively.

Beginning with May, 1933, the daily quota of the State was consistently stepped upward until the code became effective in October. The daily allowable for the months of May and June was set at 446,000 bbls. and 450,000 bbls., but actual production during the months aggregated 477,988 bbls. and 478,155 bbls. per day, respectively. In July the quota was increased to 452,500 bbls. per day and in August it was boosted to 459,600 bbls. per day. Despite this substantial increase, production during these two months totaled 488,414 bbls. and 501,188 bbls. per day. The peak was reached in September when the allowable daily production was stepped up to 480,000 bbls. and the State showed an actual output of 489,129 bbls. per day. In October the State's allowable daily quota was set at 455,000 bbls. per day, but operators kept right on producing and at the end of the month the average showed an output of 473,065 bbls. per day.

The daily quota for November showed variations from time to time due to a change in the method of computing the allowable. During this month, the umpire was permitted to hold out a certain amount to cover temporary overages resulting from the completion of new wells and other emergencies that might occur. For the first 13 days in November the State was given an allowable daily quota of 442,680 bbls. Revised allowables gave the State a daily allowable of 443,060 bbls. for the next two days, 447,144 bbls. for the following five days, 447,555 bbls. for one day, 447,763 bbls. for two days, 451,738 bbls. for one day, 454,738 bbls. for one day, 458,950 bbls. for one day, and 461,585 bbls. for the remaining four days of the month. Actual production for November, which totaled 464,452 bbls. per day, was consequently greatly in excess of the allowable. The daily quota for December was reduced to 450,000 bbls. by Secretary Ickes and operators were further ordered to make up all excesses, accumulated in the last quarter of 1933, during the first three months of 1934.

Tanker Shipments

Intercoastal shipments of refined oil to the Atlantic and Gulf Coast for domestic consumption during 1933 were substantially higher than the amount moved in the same trade during 1932. Due to commitments already made for 1934, it appears quite probable that intercoastal shipments from California during the forthcoming 12 months may exceed the aggregate shipped in 1933. Late in 1933 California marketers made contracts with the Standard Oil Co. of New Jersey and the Gulf Oil Corp. for the delivery of approximately 15,000,000 bbls. of fuel oil for delivery during 1933-34, but the price, ranging between 60 and 65 cents per barrel, does not afford any great margin of profit. Most of the California marketers were consequently reluctant to make substantial commitments for 1934 due to the fact that the increasing tendency of crude oil prices precluded shipment of fuel oil at prices prevailing at the close of 1933. It appears quite probable, however, that additional purchases of California fuel oil will be made before the close of 1934. The 15,000,000 bbls. of California fuel oil purchased by the Standard of New Jersey for 1933-34 delivery was divided among several companies. The Standard of California sold 10,000,000 bbls., the Associated and General Petroleum 2,000,000 bbls. each, Union Oil Co. 600,000 bbls. and Richfield Oil Co. 500,000 bbls. In addition, the Gulf purchased 500,000 bbls. from the Shell. Intercoastal shipments of gasoline may possibly be somewhat lower during 1934 due to a tightening up of crude oil production. Gasoline sales may fluctuate one way or the other, however, depending on the allowable daily production of the State. Export shipments of crude and refined oil from California registered a slight decline during 1933.

Decrease in Imports in 1933 at Atlantic Ports Provided Outlet for California Products

By C. O. WILLSON
New York Bureau, The Oil and Gas Journal

NEW YORK, Jan. 20.—The large decrease in imports of refinery products to United States in 1933 due to the taxes imposed by the Federal Government in 1932 has aided the market for California products in eastern states. The import taxes on crude oil and refinery products which first became effective in June, 1932, has practically stopped the importation of several refinery products and this decline, which is confined to the East Coast and Gulf Coast, has created a demand for California oils, particularly the heavier products.

In regard to imports for the entire country the following table gives a comparison for the first 11 months of 1933 and 1932 (data in barrels):

	1933	1932
Motor fuels	9,000	8,149,000
Kerosene	.....	71,000
Lubricants	none	12,000
Gas oil and fuel oil	5,947,000	18,658,000
Wax (pounds)	28,623,000	28,412,000

This table shows that imports of kerosene and lubricants have stopped entirely and in the case of motor fuels are of no consequence. The tax on wax is relatively small so that the imports in 1933 for domestic use were practically the same as in 1932.

The most important decline in imports applied to fuel oil and gas oil. It will be noted in the table that the imports in 1933 were 12,711,000 bbls. less than in 1932. The figure for 1933 does not include the imports for bonded warehouses. Under the government regulation all petroleum products can be imported without payment of tax provided the bonded warehouse regulations are carried out and the products are ultimately moved to foreign buyers.

Previous to the imposition of the import taxes in 1932 large quantities of fuel oil and gas oil were imported at Atlantic Seaboard terminals for the marine and industrial fuel buyers. The total in 1931 was 24,998,000 bbls; 1930, 26,080,000 bbls., and in 1929, 20,545,000 bbls. These imports started to decline the latter part of 1932 and in 1933 were the lowest since the government figures became available.

Despite the fact that East Coast refiners as a group increased their crude oil runs to stills in 1933 over 1932, the increase in domestic production of fuel oil was not sufficient to take care of the demand at Atlantic Seaboard points. This demand was about 10 per cent greater in 1933 than in 1932.

Outlet for California Fuels

This situation accounts for the fact that shipments of fuel oil (Table 4) from California to Atlantic Seaboard points jumped from 666,000 bbls. in 1932 to 5,534,000 bbls. in 1933, an increase of 4,868,000 bbls. A sugstantial part of California crude oil production is of low gravity and gives a large percentage yield of fuel oil and gas oil in the ordinary refinery operation. While the demand for this residual product as fuel is large in West Coast states, stocks have accumulated in recent years so that they have represented more than 50 per cent of the total in entire United States. Late in 1933 the Standard Oil Co. of New Jersey closed a contract with the Standard Oil Co. of California covering the purchase of 5,000,000 bbls. of fuel oil. This contract and others indicate that shipments will continue large during 1934.

As shown in Table 4, shipments of California gasoline and kerosene also increased in 1933 over 1932. The fact that California kerosene is being brought to the East Coast, in contrast to the situation of a few years ago when eastern kerosene was shipped to the West Coast, is of special significance. This is partially due to the fact that the production of California crudes from which a quality grade of kerosene is obtainable has increased.

The increase in receipts of California products at the larger Atlantic seaboard ports was general as shown in Table 4. Approximately 40 per cent of the total was received at the port of New York. No California crude oil was shipped to the East Coast refineries during 1933.

It will be noted in Table 3 that the receipts of California refinery products increased materially the last three months of 1933, reaching a total of 2,721,000 bbls. in December. It is said that the reduction in crude run to stills at eastern refineries under the NRA the latter part of 1933 accounts for the increased demand for California refinery products. The decrease in refinery output has left some of the refiners and jobbers short of one or more products and they have been compelled to purchase the California products.

The imports of fuel oil at the principal Atlantic ports totaled 13,660,000 bbls. in 1933. As previously explained, approximately half of this total is handled by bonded warehouses under a special arrangement with the Government which aims to protect the American refineries. The same situation under a drawback provision applies to the handling of crude oil in United States.

As shown in Tables 1 and 3 the imports of crude oil and refinery products and receipts of California refineries at Gulf Coast ports were of minor importance in 1933. The figures given in Tables 1, 2, 3 and 4 were compiled from weekly reports of the American Petroleum Institute.

TABLE 1—1933 IMPORTS OF CRUDE OIL AND REFINERY PRODUCTS AT PRINCIPAL PORTS IN UNITED STATES

Month—	Baltimore	Boston	New York	Philadelphia	Others	Total
January	237,000	135,000	1,910,000	797,000	205,000	3,284,000
February	215,000	134,000	3,374,000	353,000	303,000	4,379,000
March	239,000	133,000	3,139,000	1,117,000	496,000	5,124,000
April	300,000	201,000	2,203,000	968,000	299,000	3,971,000
May	132,000	68,000	1,839,000	699,000	104,000	2,842,000
June	145,000	.....	1,409,000	899,000	157,000	2,610,000
July	330,000	76,000	2,829,000	1,028,000	92,000	4,355,000
August	427,000	76,000	3,478,000	1,038,000	209,000	5,228,000
September	230,000	.....	1,552,000	832,000	98,000	2,712,000
October	236,000	47,000	1,878,000	743,000	.....	2,904,000
November	346,000	57,000	2,151,000	436,000	78,000	3,068,000
December	275,000	.....	2,395,000	904,000	238,000	3,812,000
Total	3,112,000	927,000	29,084,000	9,814,000	2,279,000	44,289,000

Note—In addition to the above the following shipments were received at Gulf Coast ports during 1933: Galveston, 25,000 bbls.; New Orleans and Baton Rouge, 348,000 bbls.; Port Arthur and Sabine district, 432,000 bbls.; Tampa, 137,000 bbls.; grand total, 45,094,000 bbls.

TABLE 2—1933 IMPORTS AT PRINCIPAL PORTS IN UNITED STATES BY PRODUCTS

Month—	Crude oil	Fuel oil
January	1,953,000	1,348,000
February	2,671,000	1,774,000
March	3,690,000	1,434,000
April	2,576,000	1,395,000
May	2,295,000	682,000
June	2,052,000	558,000
July	3,172,000	1,375,100
August	3,760,000	1,535,000
September	1,957,000	755,000
October	1,863,000	1,111,000
November	2,391,000	736,000
December	3,154,000	957,000
Total	31,534,000	13,660,000

TABLE 3—1933 RECEIPTS OF CALIFORNIA REFINERY PRODUCTS AT ATLANTIC PORTS

Month—	Baltimore	Boston	New York	Philadelphia	Others	Total
January	30,000	46,000	648,000	116,000	560,000	1,400,000
February	255,000	46,000	399,000	307,000	322,000	1,329,000
March	157,000	.....	512,000	309,000	432,000	1,410,000
April	180,000	.....	435,000	232,000	148,000	995,000
May	130,000	.....	473,000	443,000	182,000	1,228,000
June	38,000	.....	159,000	353,000	230,000	780,000
July	117,000	.....	538,000	747,000	470,000	1,872,000
August	77,000	54,000	426,000	466,000	301,000	1,324,000
September	103,000	43,000	457,000	349,000	312,000	1,239,000
October	56,000	105,000	532,000	232,000	778,000	1,993,000
November	350,000	243,000	1,015,000	324,000	692,000	2,623,000
December	94,000	323,000	1,277,000	230,000	797,000	2,721,000
Total 1933	1,587,000	864,000	7,131,000	4,108,000	5,224,000	18,914,000
Total 1932	1,142,000	91,000	5,634,000	2,731,000	2,001,000	11,599,000

Note—In addition to the above the following shipments of California crude oil and refinery products were made to Gulf Coast ports: New Orleans and Baton Rouge, 75,000 bbls.; Port Arthur and Sabine district, 359,000 bbls. The total for all ports was as follows: 1933, 964,000 bbls.; 1932, 224,000 bbls.

TABLE 4—1933 DISTRIBUTION OF CALIFORNIA REFINERY PRODUCTS RECEIVED AT ATLANTIC COAST PORTS

Products—	1933	1932
Gasoline	11,527,000	9,193,000
Kerosene	1,609,000	459,000
Gas oil	203,000	1,241,000
Fuel oil	5,534,000	666,000
Lubricants	41,000	40,000
Total	18,914,000	11,599,000

DRILLING IN SASKATCHEWAN

Half a dozen tests were active in Saskatchewan during 1933, but none completed. In the north, Trail Blazer Oil & Gas Co. started a test for oil at Hudson Bay Junction. In the central western section, Lloydminster Gas Co. is drilling for gas near Lloydminster; and farther east, Pine River Petroleums' No. 1, LSD 8, Section 22-12-24w2, was carried to 2,938 feet on the Dirt Hills structure in a test for gas.

Six Rich Pools Opened in Oklahoma in 1933 and Production of State Was Highest in Years

By W. A. SPINNEY

Oklahoma in 1933 was featured by the opening of six new pools, the Crescent Pool, in Logan County; Sasakwa townsite and Keokuk Falls Pools, both in Seminole County; West Chandler Pool, in Lincoln County; Olive Pool, in Creek County, and the Fitts Pool, in Pontotoc County. Some of these fields were found as the result of geophysical surveys, while others were the result of wildcat drilling on geology. An interesting development was the increased activity that was shown in the older producing areas of the State. The Greater Seminole area went through a year of routine development, marked by important extensions in the St. Louis Pool, in Pottawatomie County. The use of acid treatment to wells became general in this area and increased their production.

The Oklahoma City Field, 5 years old, was believed to be on the decline, but large sized wells were completed in the field even as late as 1934. Potential tests show that in a six-month period a potential decline of 50 per cent in both oil and gas was recorded in the field.

The Oklahoma legislature passed a new proration law that was strict and had plenty of teeth in it. Violators were subject to heavy fines and imprisonment. It was found necessary to enact such a law because of the almost continuous court procedures during the last four years attacking the old proration law and the method of administering it.

Fields that were discovered in 1932 but developed in 1933 were the Lucien Pool, Noble County; the Messer or Edmunds Pool, in Oklahoma County, and the northwest extension area of the Tatums Pool, in Carter County.

The Crescent Pool

The Crescent Field in Logan County was discovered in July and it stimulated the drilling of approximately 10 wells in the area since that time. The discovery well was the Gypsy Oil Co. and Carter Oil Co.'s No. 1 Miller, C NE SE Section 28-17-4w, near the townsite of Crescent. The well was first estimated at 5,000 bbls. a day and when gauged made 4,754 bbls. the first 24 hours, and 15,000,000 feet of gas daily.

It was located along the Nemaha Mountain trend in the central part of the State, which has yielded a number of important pools. The initial gauge of this discovery well in the Crescent area was larger than the first 24 hours' gauge of the the discovery well in the Oklahoma City Field. The size and extent of the producing area of the Crescent Pool have not been determined.

At the close of the year six wells had been completed and the producing territory stretched 1¼ miles south of the discovery well. The largest producer yet found in the field is in the extreme south end of the producing area thus far known. Some express the opinion that the Sinclair Prairie Oil Co.'s two tests on the extreme east and west edges of the area have defined the producing area on the east and west, indicating that it will follow a narrow trend in a north and south direction. The two Sinclair Prairie Oil Co. tests were low on structure indicating that the formations were dipping to the east and west.

New Pools in Seminole District

The Greater Seminole area contributed two new pools, the Sasakwa Townsite Pool and the Keokuk Falls Pool, both in Seminole County. The discovery well at Sasakwa was completed in June, Stanolind Oil & Gas Co., Amerada Petroleum Corp. and Indian Territory Illuminating Oil Co.'s No. 1 Palmer, NW cor. Section 36-6-7. The nearest production to this well was approximately 2½ miles to the southeast, in the Allen Pool. The discovery well flowed 2,525 bbls. of oil the first 24 hours from Wilcox sand at 4,040-51 feet.

The discovery well in the Sasakwa area also found oil in the Simpson sand at 4,026 feet, where it averaged around 800 bbls. of oil daily for several days before being drilled deeper. As the well was near the townsite of Sasakwa all of the town lots were leased for oil and gas development but work was delayed on account of the Corporation Commission pinching the discovery well to 50 bbls. a day, under the proration law, for the balance of the year.

The producing area was extended by the completion of two other wells, offsets to the discovery well. The second well was completed in August, Stanolind Oil & Gas Co. and others' No. 1 Reed, SW cor. Section 25-6-7. It made 1,045 bbls. of oil in 2½ hours from the Simpson dolomite at 3,973 feet. The same company extended the producing area to the west by completing a well in the NE cor. Section 35-6-7, which

Oklahoma

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
ADA-ALLEN DISTRICT:													
Daily average	11,976	12,025	12,156	11,915	11,427	11,388	11,610	11,746	11,382	11,220	11,165	10,870	
Month	371,256	336,700	376,836	357,450	354,237	341,640	359,910	364,126	341,460	347,820	334,950	336,970	4,223,355
BRAMAN DISTRICT:													
Daily average	1,696	1,785	1,855	1,512	1,640	1,564	1,554	1,682	1,612	1,630	1,609	1,588	
Month	52,396	49,980	57,505	45,360	50,840	46,920	48,174	52,142	48,360	50,520	48,270	49,228	599,699
BRISTOW-DEPEW DISTRICT:													
Daily average	9,475	8,409	8,437	8,405	8,215	8,174	9,050	8,914	9,277	8,860	8,818	8,821	
Month	293,725	235,452	261,547	252,150	254,665	245,220	280,550	276,334	278,310	274,660	264,540	273,451	3,190,604
SLICK:													
Daily average	2,754	2,712	2,437	2,448	2,156	2,163	2,167	2,171	2,114	2,125	2,041	2,036	
Month	85,374	78,736	75,547	73,440	66,836	64,890	67,177	67,301	63,420	65,875	61,230	63,116	832,942
BURBANK:													
Daily average	10,016	9,185	9,510	9,917	9,911	9,904	9,506	9,457	9,672	9,675	9,463	9,355	
Month	310,496	257,180	294,810	297,510	307,241	297,120	294,686	293,167	290,160	299,925	283,890	290,005	3,516,190
CARTER-KNOX:													
Daily average	1,736	1,716	1,630	1,778	1,670	1,676	1,785	1,811	1,827	1,747	1,714	1,688	
Month	53,816	48,048	50,530	53,340	51,770	50,280	55,335	56,141	54,810	54,157	51,420	52,328	631,975
CEMENT:													
Daily average	2,268	2,192	2,238	2,146	2,069	2,047	2,018	2,207	2,247	2,216	2,174	2,133	
Month	70,308	61,376	69,378	64,380	64,139	61,410	62,558	68,417	67,410	68,696	65,220	66,123	789,415
CHANDLER:													
Daily average	3,147	3,221	2,889	2,831	2,478	2,463	2,511	2,489	2,418	2,411	4,131	3,910	
Month	97,557	90,188	89,559	84,930	76,818	73,890	77,841	77,159	72,540	74,741	123,930	121,210	1,060,363
CLEVELAND-KEYSTONE:													
Daily average	2,428	2,530	2,374	2,408	2,360	2,344	2,743	2,779	2,786	2,764	2,623	2,629	
Month	75,268	70,840	73,594	72,240	73,160	70,320	85,033	86,149	83,580	85,684	78,690	81,499	936,057
CROMWELL:													
Daily average	5,018	5,049	5,127	5,029	4,918	4,903	5,018	4,978	4,938	4,837	4,865	4,727	
Month	155,558	141,372	158,937	150,870	152,458	147,090	155,558	154,318	148,140	149,947	145,950	146,537	1,806,735
DEER CREEK:													
Daily average	447	418	449	388	401	389	387	392	374	355	357	349	
Month	13,857	11,704	13,919	11,640	12,431	11,670	11,997	12,152	11,220	11,005	10,710	10,819	143,124
DAVENPORT-KENDRICK-STROUD:													
Daily average	1,632	1,345	1,206	1,383	1,234	1,212	1,217	1,209	1,216	1,220	1,202	1,198	
Month	50,592	37,660	37,386	41,490	38,254	36,360	37,727	37,479	36,480	38,820	36,060	37,138	464,446
DUNCAN DISTRICT:													
Daily average	5,920	5,885	5,604	4,878	5,050	4,987	4,893	4,972	4,951	4,300	5,334	4,655	
Month	183,520	164,780	173,724	146,340	156,550	149,610	151,683	154,132	148,530	133,300	160,020	144,305	1,866,494
FOX-GRAHAM DISTRICT:													
Daily average	4,378	5,011	4,294	4,205	4,343	4,260	3,984	4,351	4,247	4,162	4,111	4,114	
Month	135,718	140,308	133,144	126,150	134,633	127,800	123,504	134,881	127,410	129,022	123,330	127,534	1,563,404
GARBER-BILLINGS DISTRICT:													
Daily average	3,743	4,001	3,894	3,824	3,766	3,642	3,340	3,405	3,300	3,307	3,291	3,282	
Month	116,033	112,028	120,714	114,720	116,746	109,260	103,540	105,555	99,000	102,517	98,730	101,742	1,300,586
HENRYETTA DISTRICT:													
Daily average	2,001	1,943	1,816	1,991	1,904	1,910	2,017	2,106	1,990	1,012	1,903	1,892	
Month	62,031	54,404	56,296	59,730	59,024	57,300	62,527	65,286	59,700	59,272	57,090	58,652	711,312
HEALDTON:													
Daily average	10,416	10,211	10,174	10,017	9,901	9,878	10,071	9,949	9,992	9,818	9,576	9,632	
Month	322,896	285,908	315,394	300,510	306,931	296,340	312,201	308,419	299,760	304,358	287,280	298,592	3,638,589
HUBBARD:													
Daily average	1,838	1,744	1,468	1,466	1,048	982	1,607	1,757	1,744	1,683	1,660	1,639	
Month	56,978	48,832	45,508	43,980	32,488	29,460	49,817	54,467	52,320	52,173	49,800	50,809	566,632
JEFFERSON COUNTY:													
Daily average	1,748	1,833	2,004	2,145	1,962	1,945	2,027	2,113	2,401	2,317	2,292	2,294	
Month	54,188	51,324	62,124	64,350	60,822	58,350	62,837	65,503	70,030	71,827	68,760	71,114	763,229
KEYSTONE:													
Daily average	267	270	248	262	249	251	269	263	258	252	256	247	
Month	8,277	7,560	7,688	7,860	7,719	7,530	8,339	8,163	7,740	7,812	7,680	7,657	94,015
KONAWA:													
Daily average	3,474	3,427	3,222	2,916	2,886	3,140	3,261	3,085	3,002	2,721	2,449	2,554	
Month	107,694	95,956	99,882	87,480	89,466	94,200	101,711	95,635	90,060	84,351	74,970	79,174	1,100,579
HOLDENVILLE DISTRICT:													
Daily average	1,414	2,574	4,147	1,639	4,496	4,214	4,506	3,842	3,433	2,634	3,595	3,531	
Month	43,834	72,072	128,557	49,170	139,376	126,420	139,686	119,102	102,960	112,654	107,850	109,461	1,251,142
LOVELL:													
Daily average	334	257	242	232	287	274	266	254	242	244	241	242	
Month	10,354	7,196	7,533	6,960	8,897	8,220	8,246	7,874	7,260	7,564	7,230	7,502	94,836
MARSHALL:													
Daily average	1,739	1,620	1,483	1,595	1,574	1,581	1,447	1,484	1,210	1,350	1,151	1,114	
Month	53,909	45,360	45,973	47,850	48,794	47,430	44,857	46,004	36,300	41,850	34,530	34,534	527,391

(Continued on Next Page)

flowed 819 bbls. of oil the first 24 hours from the Wilcox sand at 4,044-57 feet.

The Keokuk Falls Field in northern Seminole County was discovered after 1,200 acres of leases had been unitized. It is located northeast of the Searight Pool. The block is located in Sections 35-11-6 and 2-10-6. The discovery well was drilled by the Carter Oil Co., Gypsy Oil Co. and Sinclair Prairie Oil Co. It was No. 1 Community, CNL NW NE Section 2-10-6, south of Keokuk Falls. The well made an initial gauge of 2,327 bbls. the first 23 hours from Misener sand at 4,090-4,106 feet. This well extended production in the Greater Seminole area about 5 miles to the north of the Searight Pool. The gas production in the well was estimated at 2,000,000 feet a day. The north offset to the discovery well was drilled by the same companies and tested the Wilcox sand at a total depth of 4,488 feet, where it found water and was plugged back to the Hunton lime where it was completed for a small well.

The size of the Keokuk Falls area is not definitely known as the development has been done slowly. Barnsdall Oil Co.'s No. 1 Deere, SW cor. NW NW Section 36-11-6, which was seeking to extend the Misener sand production, found water in the Wilcox sand and was abandoned at 4,393 feet. It was located about 1½ miles northwest of the discovery well in the Keokuk Falls area.

The West Chandler Discovery

The West Chandler Field, in Lincoln County, was discovered when the Magnolia Petroleum Co.'s No. 1 Wagoner, SW cor. SE Section 2-14-3, was completed as a good producer. It first gauged 636 bbls. of oil in 14 hours, and 1,180 bbls. in 24 hours from the Wilcox sand at 4,982-88 feet. The gas was estimated at 3,000,000 feet a day.

It was shut in until additional tankage could be erected and when opened again about a week later it made 1,300 bbls. of oil in 24 hours. This well was located more than a mile to the west of production.

The name of the West Chandler Pool, had first been used in connection with the production in Township 14-4, immediately west of the city of Chandler, and which has been producing for a number of years. This field is now called the Chandler Pool, and the new area which is located in the next township to the west has been named the West Chandler Pool.

A number of offsets were staked to the discovery well and also several locations made in the area between the Chandler Pool and the new area, but the results have not been satisfactory and water has made its appearance in a number of the wells in the West Chandler Field.

In Creek County, a new pool was discovered in Township 18-8, east of the old Cushing Field. It is known as the Olive Pool, and proved a sensation for a time, on account of its large sized wells from Layton sand at shallow depths. An intensive drilling campaign resulted, wells being completed that made as high as 800 and 1,300 bbls. initially in their output from sand at 1,200-1,350 feet. The play continued throughout the year and the producing area covered parts of three sections.

The discovery well in the Olive Pool was J. E. Crosbie's No. 1 Escoe, NW cor. NE SW Section 26-18-8, which was completed for 100 bbls. of oil a day after a shot in the Layton sand at 1,312-45 feet. The same operator also drilled the largest well in that field in No. 2 Escoe, NW cor. NE SW Section 26-18-8, which made 1,300 bbls. of oil on its initial gauge, after a 90-quart shot in the Layton sand at 1,312-47 feet.

Creek County, which is one of the oldest and richest oil-producing areas in the State, was again in the limelight. The Olive area became one of the most active in Oklahoma during the last three months of the year. The northern half of the county, also the home of Glenn Pool, and Cushing-Shamrock Field, was dotted with drilling tests and also the territory covered by the two old pools was included in the development work. These areas were developed about 25 and 20 years ago, respectively, and thousands of wells were drilled in the past quarter of a century. The play during the past year was for shallow sand production, but a few of these operations were drilled to the Wilcox sand and Prue sand.

The Fitts Pool

In August oil was found in southeastern Pontotoc County, in what is now called the Fitts Pool, named in honor of John Fitts, geologist, of Ada, Okla. The discovery well was E. H. Moore and others' No. 1 Wirick, SE cor. SW Section 29-2-7. Oil was found at 2,640-41 feet and when considerable oil rose in the hole it was shut in. The oil tested 36 gravity. It was the first oil discovered within a radius of approximately 30 miles. The well was within a mile of the Fitts gas pool, which was discovered in 1932. The discovery oil well in the area was drilled on a block of 1,800 acres. It was shut in until December and after being opened, made 700 bbls. of oil in 50 hours. It remained closed in owing to the lack of the pipe line outlet for the oil. But at the end of the year a pipe line was building into the area.

The Oklahoma City Field had its usual hetic year. It was shut in for a period of 10 days in March by order of the governor, when it was alleged that some companies were overproducing. The Wilcox sand wells in the field were again shut in from April 1 until April 17.

New Proration Law

The new proration law was signed by Governor Murray on April 10. It provided for heavy fines and imprisonment for violators. The Corporation Commission has the authority to make all orders, rules and regulations. The law also provided for proration officers with salaries. The expense of administering the proration law is paid by Oklahoma producers who are subject to a tax of one-eighth of 1 cent per barrel of oil produced, the proceeds of which are paid into the proration fund provided by the law.

The Oklahoma City Field is still considered the State's major producing field, but has declined noticeably during the last year, as it was in its fifth year. The results of potential tests showed that the wells had declined 50 per cent from their previous potentials. There

Oklahoma (Continued)

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
MANNFORD:													
Daily average	1,440	1,809	1,750	1,654	1,663	1,647	1,653	1,613	1,323	1,462	1,569	1,501	
Month	44,640	50,642	54,250	49,620	51,553	49,410	51,243	50,003	39,690	45,322	47,070	46,531	579,984
MUSKOGEE DISTRICT:													
Daily average	1,402	1,198	1,057	1,210	1,178	1,066	1,033	1,409	1,221	1,216	1,144	1,110	
Month	43,462	33,544	32,767	36,300	36,518	31,980	32,023	43,679	36,630	37,696	34,320	34,410	433,329
NOWATA COUNTY:													
Daily average	4,688	4,742	4,719	4,692	4,666	4,410	4,519	4,750	4,840	4,770	4,813	4,790	
Month	145,328	132,776	146,289	140,760	144,646	132,300	140,089	147,250	145,200	147,870	144,390	148,490	1,715,388
OKEMAH:													
Daily average	608	640	621	5,081	5,563	527	587	589	583	591	582	576	
Month	18,848	17,920	19,251	15,240	17,143	15,810	18,197	18,259	17,490	18,321	17,460	17,856	211,795
OKLAHOMA CITY:													
Daily average	100,242	150,110	199,470	102,892	150,554	193,057	269,410	269,493	229,643	180,002	171,959	180,989	
Month	3,107,502	4,203,080	6,183,570	3,086,760	4,667,174	5,791,710	8,351,710	8,354,283	6,889,290	5,580,062	5,158,770	5,610,659	66,984,570
OKMULGEE DISTRICT:													
Daily average	5,058	5,231	4,936	5,016	4,649	4,675	4,318	4,555	4,672	4,644	4,310	4,114	
Month	156,798	146,468	153,016	150,480	144,119	140,250	133,858	141,205	140,160	143,964	129,300	127,534	1,707,152
OLEAN-RIPLEY:													
Daily average	1,242	1,230	1,156	1,069	1,058	1,042	1,117	1,035	1,161	1,147	1,096	1,082	
Month	38,502	34,440	35,836	32,070	32,798	31,260	34,627	32,085	34,830	35,557	32,880	33,542	408,427
OSAGE (Outside Burbank):													
Daily average	16,490	16,405	17,681	17,730	16,181	16,916	16,659	16,668	18,085	18,998	20,393	22,015	
Month	511,190	459,340	548,111	532,170	501,611	507,480	516,429	516,708	542,550	588,938	611,790	682,465	6,518,712
PONCA CITY-BLACKWELL:													
Daily average	2,238	2,305	2,156	2,173	2,161	2,152	2,239	2,187	2,289	2,262	2,271	2,263	
Month	69,378	61,740	66,836	65,190	66,991	64,560	69,409	67,797	68,670	70,122	68,130	70,153	808,976
ROBERTSON:													
Daily average	1,672	1,707	1,511	1,508	1,467	1,470	1,449	1,407	1,409	1,390	1,372	1,360	
Month	51,832	47,796	46,841	45,240	45,477	44,100	44,919	43,617	42,270	43,090	41,160	42,160	538,500
ROGERS COUNTY:													
Daily average	1,451	1,456	1,452	1,459	1,433	1,419	1,447	1,460	1,502	1,489	1,507	1,515	
Month	44,951	40,768	45,012	43,770	44,423	42,570	44,857	45,260	45,060	46,159	45,210	46,965	535,000
PAPOOSE:													
Daily average	1,748	1,670	1,581	1,494	1,379	1,422	1,507	1,435	1,389	1,361	1,383	1,350	
Month	54,188	46,760	49,011	44,820	42,749	42,660	46,717	44,485	41,670	42,191	41,490	41,850	538,591
SEMINOLE FIELD:													
Seminole City—													
Daily average	10,583	10,404	10,277	9,595	9,451	9,973	12,353	13,903	12,137	10,345	9,973	10,203	
Month	328,073	291,312	318,587	287,850	292,981	299,190	382,943	430,993	364,110	320,695	299,190	316,293	3,932,217
East Seminole—													
Daily average	869	867	932	873	852	1,029	1,392	1,911	1,693	1,461	1,318	1,216	
Month	26,939	24,276	28,892	26,190	26,412	30,870	43,152	59,241	50,790	45,291	39,540	37,696	439,289
Bowlegs—													
Daily average	10,685	10,599	10,053	9,040	9,103	9,519	17,778	13,826	12,014	15,376	10,297	10,433	
Month	331,235	296,772	311,643	271,200	282,193	285,570	396,118	428,606	360,420	321,656	308,910	323,423	3,917,746
Little River—													
Daily average	18,350	17,811	17,767	15,576	16,219	15,224	20,150	21,119	18,393	15,698	16,295	14,704	
Month	568,850	498,708	550,777	467,280	505,889	456,720	624,650	654,689	551,790	486,638	488,850	455,824	6,310,665
East Little River—													
Daily average	1,332	1,236	1,246	1,166	1,147	1,182	1,415	1,137	994	866	845	751	
Month	41,292	34,608	38,626	34,980	35,557	35,460	43,865	35,247	29,820	26,846	25,350	23,281	404,932
East Earlsboro—													
Daily average	17,169	15,553	15,507	15,225	14,742	15,732	20,075	19,718	15,882	14,133	14,218	12,542	
Month	532,239	435,484	480,717	456,750	457,002	471,960	622,325	611,258	476,460	438,123	426,540	388,802	5,797,660
Earlsboro—													
Daily average	14,280	13,263	13,574	12,974	12,762	11,546	13,485	13,509	12,142	10,801	10,834	9,267	
Month	442,680	371,364	420,794	389,220	395,622	346,380	418,035	418,779	364,260	334,831	325,020	287,277	4,514,362
South Earlsboro—													
Daily average	2,000	1,810	1,767	1,675	1,571	1,382	1,784	2,029	1,750	1,363	1,334	1,337	
Month	62,000	50,680	54,777	50,250	48,701	41,460	55,304	62,899	52,500	42,253	40,020	42,997	603,841
Searight—													
Daily average	2,918	2,682	3,011	2,837	2,632	3,070	3,237	3,038	2,658	2,339	2,620	2,241	
Month	90,458	75,096	93,341	85,110	81,592	92,100	100,347	94,178	79,740	72,509	78,600	69,471	1,012,542
Mission—													
Daily average	5,926	5,942	5,809	5,532	5,320	4,954	5,972	5,914	5,196	4,587	4,194	4,340	
Month	183,706	166,376	180,079	165,960	164,920	148,620	185,132	183,334	155,880	142,197	125,820	134,540	1,936,564
Carr City—													
Daily average	8,361	8,396	8,114	7,484	7,500	7,832	9,366	8,352	7,127	6,051	5,950	5,862	
Month	259,191	235,088	251,534	224,520	232,500	234,960	290,346	258,912	213,810	187,581	178,500	181,753	2,748,695
Maud—													
Daily average	1,548	1,401	1,565	1,574	1,544	1,513	1,632	1,613	1,549	1,543	1,465	1,406	
Month	47,988	39,228	48,515	47,220	47,864	45,390	50,592	50,003	46,470	47,833	43,950	43,586	558,639
TOTAL SEMINOLE FIELD:													
Daily average	94,021	89,964	89,622	83,551	82,943	82,956	103,639	106,069	91,535	79,563	79,343	74,352	
Month	2,914,651	2,518,992	2,778,282	2,506,530	2,571,233	2,488,680	3,212,309	3,288,139	2,746,050	2,466,453	2,380,290	2,304,943	32,177,754

(Continued on Next Page)

What price HOMOGENEITY

In the course of a year, Republic salesmen are many times asked the question, "Why should we pay a premium for Toncan Iron Pipe?"

The answers, "Because it lasts longer," and "Because it is worth it for economy reasons," are true, but there's a better answer.

The premium you pay for Toncan Iron is the price you pay for homogeneity—perfect uniformity. Toncan Iron is an alloy of refined iron, copper and molybdenum—and please don't confuse it with copper-bearing steel. To make such an alloy requires experience, more expensive materials and costly time. Severe specifications control the material charged into the open hearth. The refining of the iron and the addition of the copper and molybdenum at the right time are real accomplishments. Skilled ingot practice prevents the segregation of the metalloids and the inclusion of foreign solids and gases. And here is the result—an alloy that is homogeneous—in which every portion of the metal is the same throughout and equally resistant to rust—a resistance that is surpassed among the ferrous metals only by the stainless irons and steels.

That briefly is the real answer to the question—"Why should we pay more for Toncan Iron Pipe," and after a trial in service has proved its economy, its real worth is quickly apparent.

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TONCAN COPPER MOLYB-DENUM IRON PIPE

REPUBLIC STEEL CORPORATION

GENERAL OFFICES YOUNGSTOWN, OHIO

were a total of 57 producers completed in the field during the year, bringing the total wells completed in the field to 1,051. In addition there were 56 gas wells completed, a majority of which were wells plugged back from lower horizons from which they originally produced oil.

Water is fast making its way into the Simpson and Wilcox sand zones in the Oklahoma City Field and because of this the Corporation Commission was considering an order at the close of the year to put the entire Simpson sand zone on a lease basis, in lieu of a per well basis, for proration.

An interesting development was the fight to extend the drilling zone into the heart of Oklahoma City. Two extensions were made during the year, one extending the derricks within five blocks of the city hall. The other extended production about 2 miles north of the State Capitol. It was Frank Russell's No. 1, which flowed 325 bbls. of oil in 13 hours from the Wilcox sand at a total depth of 6,700 feet. The agitation to extend the U-7 drilling in the Oklahoma City area cooled when the Frank Russell's well and several other wells in the zone on the northwest edge of the field failed to make large producers.

North of the Oklahoma City Field, the Edmond area was again active. The discovery well was completed 2½ years before, but shut in, during that time. Rapp and others' No. 1 Price, NE cor. SW Section 19-14-3w, Oklahoma County, 2 miles north of No. 1 Messer, the discovery well, was showing for around 100 bbls. a day from the Wilcox sand at a total depth of 6,708 feet. W. E. Huston and others' No. 1 Ketchum, C NE SE Section 32-14-3w, three-quarters of a mile east of No. 1 Messer, was completed as a dry hole and was abandoned.

Development of Lucien

The Lucien Pool, in Noble County, which was discovered in 1932, was developed during the last year until a total of 12 wells had been completed at the close of the year with a potential of 45,028 bbls. daily. It is believed the producing area has been defined but considerable proved territory is still open for development. Dry holes were found in all directions from the unitized community block on which the discovery well was completed. The block consisted of 2,160 acres. Companies included in the unit operation were Shell Petroleum Corp., Gypsy Oil Co., Carter Oil Co., Sinclair Prairie Oil Co., L. H. Wentz, Twin State Oil Co., Empire Oil & Refining Co., and Phillips Petroleum Co. These companies formed what is known as the Lucien Consolidated Community block.

The second well completed in the Lucien Field was the Lucien Consolidated Community's No. 1 Jerome, C SW SW Section 8-20-2w, in 1933, which made 1,115 bbls. of oil a day from the Wilcox sand at 5,184-5,306 feet.

After three wells had been completed in the field, the finding of a large producer in May, 1933, stimulated interest and many considered the field had been removed from the secondary class to a major producing area.

The gusher well was the Lucien Consolidated Community's No. 1 Whitten, C SE SE Section 7-20-2w, which was estimated at 10,000 bbls. daily, and 10,000,000 feet of gas a day from the Wilcox sand at 5,168-5,211 feet. The well flowed 498 bbls. of oil the first hour.

Another well, which extended production 2½ miles southeast, was Stanolind Oil & Gas Co. and Amerada Petroleum Corp.'s No. 1 Kolb, C NE NW Section 33-20-2w. The well made 640 bbls. of oil in 24 hours from the Wilcox sand at 5,075-5,107 feet.

The production was also extended to the south a half mile from the Community block by the Shell Petroleum Corp.'s No. 1 Schoenwald, C NW NE Section 20-20-2w. The well flowed 1,245 bbls. of oil in 2 hours and 25 minutes from the Wilcox sand at a total depth of 5,145 feet.

OKLAHOMA

Summary of Wells Completed in 1933

County—	Comp.	Prod.	Dry	Gas
Atoka	18	31	12	0
Beckham	1	0	0	1
Carter	50	16,615	11	1
Comanche	4	5	3	0
Caddo	5	75	3	1
Creek	187	11,588	56	14
Cotton	4	0	4	0
Cleveland	1	0	1	0
Garfield	3	75	2	0
Grady	2	180	1	0
Haskell	2	0	2	0
Hughes	54	7,356	10	4
Jefferson	28	919	9	1
Kay	4	164	1	1
Kiowa	2	0	1	1
Lincoln	7	3,304	1	0
Logan	10	22,792	2	0
Latimer	1	0	1	0
Marshall	18	120	9	1
McIntosh	4	25	2	1
Muskogee	30	152	20	2
Noble	26	28,405	8	1
Oklahoma	70	118,822	3	3
Okmulgee	85	1,112	38	11
Okfuskee	19	1,314	3	3
Osage	88	16,814	14	0
Payne	7	0	5	0
Pawnee	15	131	5	2
Pontotoc	47	3,939	15	7
Pottawatomie	61	34,026	10	0
Seminole	82	36,448	20	0
Stephens	45	416	27	1
Tulsa	40	1,119	19	6
Tillman	3	0	3	0
Wagoner	66	1,345	31	7
Washita	1	0	0	1
Pittsburg	2	0	0	2
Pushmataha	1	0	1	0
Total 1933	1,093	307,323	353	72
Total 1932	1,130	647,316	381	106
Difference	37	339,993	28	34
Total 1931	1,058	1,941,805	374	186
Total 1930	3,466	5,628,234	1,002	403
Total 1929	3,613	1,178,945	1,245	369
Total 1928	3,679	1,016,000	1,227	491
Total 1927	4,513	1,971,081	1,443	508

Summary by Months

Month—	Comp.	Prod.	Dry	Gas
January	90	31,567	42	2
February	81	12,169	30	4
March	80	10,198	25	6
April	85	42,069	31	4
May	98	22,339	36	8
June	88	14,000	28	6
July	59	18,703	21	7
August	70	14,458	28	4
September	98	33,849	31	6
October	69	23,515	12	5
November	134	46,659	32	11
December	141	37,797	37	9
Total 1933	1,093	307,323	353	72

Naval Reserve Big Wells

The Lewis Production Co. extended the Naval Reserve area in Osage County, which was discovered by Peters Petroleum Co. in 1932, and the Osage Agency held a sale and one tract in the district sold for $77,000 setting a top price for leases for the past several years in Osage County.

Sensational wells, one of which made 2,400 bbls. in one day, were completed in the Naval Reserve area and 12 wells were drilling in at the close of the year. Production is found in the Siliceous lime, the Burgess and Bartlesville sands and in a shallow sand found at 750-800 feet.

In Tulsa County, one of the older producing areas in the State, a well in the Bixby district completed in November, stirred up considerable interest in that area. The well was Rachel Oil Co.'s No. 1, SW cor. NE NW Section 8-17-14. It started flowing by heads making 500 bbls. of high gravity oil a day from the Dutcher sand at 1,488-1,501 feet. Other wells in the general trend include H. W. Bowdin's No. 1 Perryman, NW cor. NE NE SW Section 5-17-14, which swabbed between 50 and 60 bbls. of oil in 24 hours from sand at 1,480-82 feet. This area is one of the oldest producing districts in Oklahoma.

Townships 18-15 and 17-15, in Wagoner County, which comprise a part of the Coweta Field, has been one of the most active districts in Oklahoma during the last year. While it has had a large percentage of dry holes it is to be expected as the history of the Coweta Field has always shown that drilling results have been spotted.

In the older districts of the State a revival of cleaning out and reworking of old producing wells in the eastern part of Oklahoma, including the coun-

(Continued on Page 82)

Oklahoma (Continued)

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
ST. LOUIS-PEARSON:													
Daily average	18,351	18,597	18,303	17,845	18,402	19,939	23,295	29,062	27,433	23,064	23,077	22,385	
Month	568,881	520,716	567,393	535,350	570,462	598,170	722,145	900,922	822,990	714,984	692,310	693,935	7,968,258
SASAKWA:													
Daily average	1,501	1,407	1,738	1,808	1,391	1,280	1,675	2,828	3,164	2,830	2,270	2,092	
Month	46,531	39,396	53,878	54,240	43,121	38,400	51,925	87,668	94,920	87,730	68,100	64,852	730,761
SHOLEM ALECHEM:													
Daily average	5,995	6,114	6,076	5,987	5,932	5,814	5,287	5,370	5,248	4,938	4,948	4,858	
Month	185,845	171,192	188,356	179,610	183,892	174,420	163,897	166,470	157,440	153,078	148,440	150,598	2,023,238
TONKAWA:													
Daily average	4,930	4,773	4,794	4,783	4,335	4,264	4,727	4,567	4,428	4,552	4,473	4,462	
Month	152,830	133,644	148,614	143,490	134,385	127,620	146,537	141,577	132,840	141,112	134,190	138,322	1,675,161
WASHINGTON COUNTY:													
Daily average	3,791	3,803	3,720	3,716	3,644	3,610	3,714	3,680	3,711	3,726	3,714	3,702	
Month	117,521	106,484	115,320	111,480	112,964	108,300	115,134	114,080	111,330	115,506	111,420	114,762	1,354,301
WEWOKA:													
Daily average	3,910	3,887	3,869	3,203	3,782	3,446	6,490	6,205	5,225	4,617	4,617	4,792	
Month	121,210	108,836	119,939	96,090	117,242	103,380	201,190	192,355	156,750	143,127	138,510	148,552	1,647,181
YALE-JENNINGS:													
Daily average	3,626	3,495	3,548	3,493	3,385	3,360	3,348	3,540	3,378	3,363	3,232	3,306	
Month	112,406	97,860	109,988	104,790	104,935	100,800	103,788	109,740	101,340	104,253	96,960	102,486	1,249,346
FISH:													
Daily average	2,611	2,438	2,451	2,616	2,492	2,019	2,635	3,272	3,104	3,009	3,020	3,034	
Month	80,941	68,264	75,981	78,480	77,252	60,570	81,685	101,432	93,120	93,279	90,600	94,054	995,658
TULSA DISTRICT:													
Daily average	4,036	3,559	3,938	3,878	4,017	4,103	4,082	4,162	4,219	4,212	3,917	4,015	
Month	125,116	99,652	122,078	116,340	124,527	123,090	126,542	129,022	126,570	130,572	117,510	124,465	1,465,484
CUSHING DISTRICT:													
Daily average	13,799	13,890	14,376	14,616	14,684	14,011	14,953	14,805	15,006	15,111	16,729	15,956	
Month	427,769	388,920	445,656	438,480	455,204	420,330	463,543	458,955	450,180	468,441	501,870	494,636	5,413,984
ASHER-WANETTE:													
Daily average	4,550	3,861	3,939	3,635	3,470	3,144	2,683	2,675	2,626	2,453	2,463	2,230	
Month	141,050	108,108	122,109	109,140	107,570	94,320	83,173	82,925	78,780	76,043	73,890	69,130	1,146,238
MADILL:													
Daily average	201	197	193	206	173	176	185	191	176	181	177	179	
Month	6,231	5,516	5,983	6,180	5,363	5,280	5,735	5,921	5,280	5,611	5,310	5,549	67,959
HEWITT:													
Daily average	5,547	5,552	5,518	5,010	5,095	5,161	5,244	5,161	5,173	5,053	5,059	4,994	
Month	171,957	155,456	171,058	150,300	157,945	154,830	162,564	159,991	155,190	156,643	151,770	154,814	1,902,518
GLENN POOL DISTRICT:													
Daily average	4,894	4,850	4,748	4,983	4,716	4,612	4,870	4,915	4,911	4,918	4,890	4,897	
Month	151,714	135,800	147,188	149,490	146,196	138,360	150,970	152,365	147,330	152,458	146,700	151,807	1,770,378
PERRY DISTRICT:													
Daily average	1,174	1,096	813	699	891	1,045	660	646	639	642	631	627	
Month	36,394	30,688	25,203	20,970	27,621	31,350	20,460	20,026	19,170	19,902	18,930	19,437	290,151
TATUMS:													
Daily average	3,789	3,615	3,915	3,891	3,941	3,945	8,231	8,925	10,394	9,615	8,468	7,476	
Month	117,459	101,220	121,365	116,730	122,171	118,350	255,161	276,675	311,820	298,065	254,040	231,756	2,324,812
LUCIEN:													
Daily average							2,175	4,539	6,625	7,124	6,759	5,456	
Month							67,425	140,709	199,050	220,844	202,770	169,136	999,934
WEST KONAWA:													
Daily average	808	755	790	872	1,007	728	2,649	2,093	1,709	1,809	2,544	2,575	
Month	25,048	21,140	24,490	26,160	31,217	21,840	82,119	64,883	51,270	56,079	76,320	79,825	560,391
Daily average	405,672	449,719	499,556	391,539	437,187	478,697	593,754	606,722	553,463	484,872	478,801	478,554	488,648
Total 1933	12,575,832	12,592,132	15,479,726	11,746,170	13,552,797	14,360,910	18,406,374	18,808,382	16,603,890	15,031,032	14,364,030	14,835,174	178,356,449
Total 1932	13,664,149	11,806,190	12,998,796	12,718,020	12,169,420	12,757,230	13,030,571	12,743,666	11,705,280	11,916,811	11,340,930	11,637,171	149,487,234
Total 1931	14,850,953	13,531,980	16,627,687	16,815,990	17,333,867	16,678,200	16,420,080	9,517,279	7,946,880	12,951,893	16,430,730	16,598,299	175,703,848
Total 1930	20,802,984	17,977,624	19,115,406	19,541,310	20,587,503	19,754,700	18,032,514	17,162,034	16,509,120	16,632,523	14,941,770	15,057,103	216,114,591
Total 1929	22,575,874	20,464,164	20,838,262	20,235,390	21,345,453	20,561,112	22,371,925	22,429,522	21,299,490	20,821,646	19,193,760	20,092,876	252,229,474
Total 1928	20,978,320	19,294,426	20,162,524	19,096,920	19,443,355	18,482,981	18,809,188	20,840,804	22,456,860	23,431,071	22,078,680	22,425,722	247,500,851
Total 1927	19,035,426	19,752,348	22,480,921	22,208,130	23,258,463	22,830,320	26,522,546	26,283,350	24,111,660	24,247,053	23,083,380	22,208,417	276,022,624
Total 1926	13,674,813	12,392,016	14,312,886	14,468,190	14,507,008	14,073,510	14,657,482	14,618,236	14,466,510	15,720,689	16,876,950	17,882,908	177,651,198

More Wells Drilled in Rocky Mountain Region Last Year Than in 1932; Few Discoveries

By TOLBERT R. INGRAM
Staff Correspondent, Rocky Mountain Area

There were 232 wells completed in 1933 in the Rocky Mountain fields of Montana, Wyoming, Colorado, Utah and New Mexico, or 21 more than in 1932, but the initial production was less and the number of oil wells drilled numbered 120 as against 110 in 1932. No major discoveries were made in any of the five states, and while Washington and Idaho also aspired to become oil states they did not break into the production column with oil in commercial quantity.

New Mexico

Drilling operations in New Mexico during 1933 were practically on a par with 1932, the number of completions being only two more than in the preceding year. There was a decrease in new production, however, of 22,582 bbls. daily, due to a slight decrease in the number of wells drilled in the Hobbs Pool. The number of dry holes (15) were the same for both years.

The Hobbs Pool continued under proration during the year, an agreement having been reached during the summer between the State and the operators to extend the plan to July 1, 1934. Twenty-seven units of 40 acres each were brought into production during the year by wells drilled, making 184 units being produced at the end of the year. The allowable outlet was 21,306 bbls. daily at the beginning of 1933, but when the agreement came up for consideration in the spring the State insisted upon the minimum being raised to 30,000 bbls. This was accepted and at the end of 1933 the daily allowable was 33,473 bbls. A plan proposed for prorating the field on the basis of 40 per cent on acreage and 60 per cent on potentials failed to obtain the signatures of all the operators in April, but late in the fall a compromise was reached whereby 17 units on the southwestern edge where water was showing were given that basis, the remainder of the field staying on the 25 and 75 per cent basis. On November 1, potentials were determined on the assigned pressure basis and the total was reduced 71,165 bbls. daily to 1,265,232 bbls. Pipe line runs from the field during the year (with December estimated) aggregated 11,382,000 bbls., bringing the total since proration began up to 39,900,000 bbls. The water situation on the southwestern edge and on the extreme northern edge showed no material change during the year and intrusion is being held down to the least minimum.

Several wells drilled on the flanks of the Hobbs structure during 1933 defined the productive area on the north, northwest and southeast. The northern limit of the pool was found in the Humble Oil & Refining Co.'s No. 1 Hardin, SW cor. NW Section 18-18-38, which was drilled to 4,247 feet and swabbed 100 per cent water. It was then plugged back without improving conditions and then deepened to 4,720 feet where it was plugged and abandoned. Its elevation is 3,670 feet. It topped the anhydrite at 1,545 feet and the salt at 1,680 feet. The top of the brown lime was at 2,870 feet and the Terry at 4,172 feet.

The best completion in the pool during the year and one of the largest at any time was the Shell Petroleum Corp.'s No. 4-B McKinley, Section 20-18-38, which gauged 22,940 bbls. first day.

Four wells were drilled in the Lea area during the year, one by Cranfill & Reynolds and three by the Texas Co. The Texas Co.'s No. 1-B Lynch, C SW NW Section 34-20-34, half a mile to the northwest of the nearest producer, was dry and abandoned at 3,808 feet, at which depth it encountered sulphur water. It marked the limit of the pool on the northwest. The elevation is 3,755 feet and it topped the brown lime at 3,360 feet and the white lime at 3,627 feet. The same company's No. 3-A Lynch, C NW NE Section 34, half a mile to the northeast of the No. 1-B Lynch, proved up some additional territory to the north and indicated the trend of the folding. It was drilled to 3,745 feet and swabbed 100 bbls. of oil and 30 bbls. of water in 24 hours. It was treated with acid twice and finally was completed for 310 bbls. of oil plus 30 per cent water. Its elevation is 3,725 feet and it topped the white lime at 3,562 feet and the pay at 3,738 feet.

The Atlantic Oil Producing Co. proved up one-fourth of a mile territory in its No. 1-B State, C NE SE Section 8-21-36, in the Eunice Pool, a south offset to the Tidal Oil Co.'s No. 1 State. An interesting feature of this well was the increase in production as compared with its offset, credited to the treatment of the lime with acid. The Tidal well made 524 bbls. initial at 3,985 feet and the Atlantic well 1,008 bbls. at 3,901 feet.

Four wells were drilled to completion in the Jal Pool, the most important being the Continental Oil Co.'s No. 1-B Sholes-13, C SW NW Section 13-25-36, which gauged 2,280 bbls. of oil and 40,000,000 feet of gas first 24 hours at 3,370 feet, total depth. This well holds the record for initial oil production in the pool. It shut off more than 100,000,000 feet of gas in upper horizons.

The Carter and Continental Oil Companies drilled a wildcat in their No. 1 State, C NE NE Section 28-22-35, south of the Empire Pool and west of the South Eunice area, which was dry and abandoned at 4,474 feet. It had no shows. The elevation is 3,547 feet and the top of the brown lime was at 3,856 feet.

In Eddy County a new high was found in the Jackson area in Harry Leonard and the Barnsdall Oil Corp.'s No. 1 Dodd, SW SE SW Section 22-17-29, to the east of the Leonard gas wells in Section 21 and 2 miles west of the Grayburg Oil Co.'s No. 2 Keeley, C SE NE Section 24, which was completed for 350 bbls. of oil and 4,000,000 feet of gas at 3,092 feet in 1930. No. 1 Dodd was completed as a 24-bbl. oil well at 2,993 feet, total depth, and 1,740,000 feet of gas at 2,280-85 feet was saved. The elevation is 3,539 feet and the top of the brown lime at 2,089 feet and the top of the Terry at 2,595 feet. The pay was at 2,714-18 feet. The same interests then went one-half mile to the north and completed No. 9 State for 100,000 feet of gas at 3,002 feet.

An extension of the Artesia Pool 1½ miles to the north and east was found in Van P. Welch, Jr., and others' No. 1 State, NW NE SE Section 22-17-28, which flowed 75 bbls. initial through the 6⅝-inch at 2,027 feet, total depth, after a shot of 60 quarts.

NEW MEXICO
Summary of Wels Completed in 1933

County—	Comp.	Prod.	Dry	Gas
Bernalillo	1	0	1	0
DeBaca	1	0	1	0
Dona Ana	1	0	1	0
Eddy	13	460	4	1
Lea	36	148,262	4	0
San Juan	8	214	3	0
Santa Fe	1	0	1	0
Total 1933	61	148,936	15	1
Total 1932	63	171,518	15	4
Difference	2	22,582	0	3

Completions by Months

	Comp.	Prod.	Dry	Gas
January	5	36,673	0	0
February	8	39,697	2	0
March	7	21,156	1	0
April	9	9,780	3	0
May	8	14,030	2	0
June	1	129	0	0
July	6	1,873	3	0
August	4	23,068	2	0
September	1	310	0	0
October	6	632	1	0
November	3	1,578	0	0
December	3	10	1	1
Total	61	148,936	15	1

Colorado

The most important discovery in Colorado in 1933 was made in a deep test drilled on the Rangely Dome in Rio Blanco County, on the western boundary of the State, by the California Co. in its No. 1 California-Raven, C NW SE Section 30-2n-102. Rangely is a large and well defined structure which was first drilled 33 years ago and since then has been producing small quantities of high grade crude from sandy lenses in the Mancos shale at around 600 feet. Numerous tests were drilled in subsequent years, three by the Standard Oil Co. of California and two each by the Texas Co. and the Midwest Refining Co. Some of these showed from 5,000,000 to 80,000,000 feet of gas, open flow initial production, in the Dakota at around 3,000 feet. In 1927 the Tide Water Oil Co. drilled to 4,800 feet and found water in the Sundance. In March, 1931, the California Co. started its deep test to explore horizons below the Sundance in the hope of discovering the source of the oil and gas in the upper formations. It was drilled to 7,173 feet,

New Mexico
Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
HOGBACK:													
Daily average	323	315	221	213	208	211	212	200	210	214	226	207	
Month	10,013	8,820	6,851	6,390	6,448	6,330	6,573	6,200	6,300	6,634	6,780	6,417	83,756
RATTLESNAKE:													
Daily average	484	475	597	677	673	667	636	573	805	870	865	840	
Month	15,004	13,300	18,507	20,310	20,863	20,010	19,720	17,750	24,150	26,970	25,950	26,040	248,574
TABLE MESA:													
Daily average	97	88	81	86	100	79	79	100	88	86	81	97	
Month	3,007	2,464	2,511	2,580	3,100	2,370	2,472	3,100	2,640	2,666	2,430	3,007	32,347
ARTESIA:													
Daily average	469	473	467	647	515	531	589	592	602	538	603	598	
Month	14,539	13,244	14,477	19,410	15,965	15,930	18,256	18,366	18,060	18,228	18,090	18,538	203,103
HOBBS:													
Daily average	25,918	30,277	30,731	28,876	28,065	28,804	30,162	31,312	33,270	33,449	33,570	33,555	
Month	803,458	847,756	952,661	866,280	888,615	864,120	935,022	970,672	998,100	1,036,919	1,007,100	1,040,205	11,210,908
JAL:													
Daily average	1,047	1,061	1,210	1,160	1,195	1,471	1,615	1,562	1,636	1,732	1,707	1,660	
Month	32,457	29,708	37,510	34,800	37,045	44,130	50,065	48,422	49,080	53,692	51,210	51,460	519,579
EUNICE:													
Daily average	506	514	462	491	571	562	590	662	925	1,263	1,107	1,054	
Month	15,686	14,392	14,322	14,730	17,701	16,860	18,290	20,522	27,750	39,153	33,210	32,674	265,290
MALJAMAR-JACKSON:													
Daily average	995	865	849	941	902	908	1,199	1,153	1,187	1,425	1,374	1,360	
Month	30,845	24,220	26,319	28,230	27,962	27,240	37,154	36,750	35,610	44,175	41,220	42,160	401,885
LEA CITY AND T. & P.:													
Daily average	2,284	2,390	2,436	2,410	2,420	2,210	2,182	2,197	2,185	2,287	2,255	2,230	
Month	70,804	66,920	75,516	72,300	75,020	66,300	67,642	68,107	65,550	70,897	67,650	69,130	835,836
Daily average	32,123	36,458	37,054	35,501	35,249	35,443	37,264	38,351	40,908	41,914	41,788	41,601	37,812
Total 1933	995,813	1,020,824	1,148,674	1,065,030	1,092,719	1,063,290	1,155,194	1,189,889	1,227,240	1,299,334	1,253,640	1,289,631	13,801,278
Total 1932	1,152,766	1,056,702	1,126,354	1,096,320	1,109,273	1,069,020	1,093,835	971,075	934,800	975,043	925,410	834,086	12,344,684
Total 1931	1,233,204	1,123,220	1,252,989	1,199,730	1,385,359	1,328,070	1,305,503	1,305,534	1,276,290	1,330,613	1,295,730	1,324,041	15,360,382
Total 1930	315,549	238,532	357,528	374,880	558,589	686,040	1,369,061	1,311,052	1,344,510	1,343,509	1,212,510	1,286,655	10,377,416
Total 1929	87,658	83,384	89,621	98,640	96,751	88,762	125,116	145,421	177,840	245,675	279,090	285,293	1,803,261
Total 1928	74,865	59,981	69,347	68,160	73,470	58,860	69,471	89,156	94,830	97,309	98,100	120,342	973,881
Total 1927	136,679	138,460	148,738	142,140	112,530	102,120	89,200	76,911	73,500	58,652	71,910	63,364	1,214,284

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stopping in the Madison lime after penetrating the Weber formation of Pennsylvanian age. No oil was found, however, below 6,300 feet and the hole was plugged back to 6,335 feet. It cut about 600 feet of the Weber, containing numerous lenses of sand, and after being given several very heavy shots it finally was completed for about 138 bbls. of 33 gravity oil per day. The test was drilled primarily for the geological formation it would yield. It proved the Weber, or Pennsylvanian, to be in place and opened up possibilities in that horizon on a number of structures in eastern Utah and western Colorado.

William A. Myers and others drilled a similar deep test on the Skull Creek Dome in Moffat County, in their No. 1 State, NW SW SW Section 16-4n-101, which went to 3,422 feet, stopping in lime, probably of Mississippian age. It found the base of the Weber at 2,090 feet and the top of the Mississippian at 2,760 feet. Shows of oil and gas were encountered, but no commercial production was found.

The largest well completed in the State during the year, which proved up an extension of the Iles Dome in Moffat County for a quarter of a mile on the east, was the Texas Co.'s No. 1 Iles Investment Co., NW cor. Lot 7, approximately SE SW Section 23-4n-92. Contrary to expectations, it found the Sundance sand approximately 90 feet higher than in the wells to the west and came in for 1,100 bbls. initial of 31 gravity oil at 3,447 feet, 1 foot in the sand. It topped the Dakota at 2,850 feet and found water as in the other wells on the structure. The Morrison sands at 3,260-80 feet and 3,293-3,319 feet, productive to the west, were dry. As a result of this discovery the Texas Co. and the Stanolind Oil & Gas Co. were each drilling offsets at the end of the year.

The Rocky Mountain Gas Co. drilled one test on the Craig Dome, in Moffat County, 1,500 feet to the west of its No. 1 Bogenschultz, the discovery well, and failed to find any important extension of the pool in that direction. This well, its No. 1 Eberle, SE SW SE Section 9-6n-91, cut numerous sands at 200 to 2,000 feet which made an aggregate of around 25,000 bbls. of water per day. At 1,270-1,305 feet it showed for about 10 bbls. per day of dead oil. It was completed at 3,560 feet for 300,000 feet of gas per day in the upper Morapas and lower Morapas sands at 3,412-60 feet and 3,520-60 feet, with a pressure of 880 pounds. It missed the big gas at 2,800 feet which gauged 11,000,000 feet initial in the discovery well. At the end of the year the east side of the dome was being tested in a well 445 feet southeast of the discovery.

The Hiawatha Dome, from which large quantities of gas is produced in the Wasatch formation at 2,200 to 3,500 feet, was tested to the base of the Mesa Verde at 7,577 feet by the Mountain Fuel Supply Co. in its No. 2 Florence Wilson, C NE NE Section 22-12-100. This well established a depth record for Colorado, but failed to make any important discovery in the lower horizons. It was plugged back to 3,719 feet and completed for 707,000 feet of gas per day in sands in the Wasatch at 3,351-71 feet and 3,676-3,719 feet. The top of the Mesa Verde was at 7,224 feet. The elevation is 7,225 feet.

Two important tests, both in Weld County, were drilled in northeastern Colorado, but neither yielded up the secret of where the pool believed to exist is located. Late in 1932 the Ramsey Petroleum Co.'s No. 1 St. Anthony, SW NE SE Section 15-7n-59, New Raymer district, was completed as a 6,000,000-foot gas well in the Muddy sand at 6,680-6,700 feet, after plugging back from the Dakota. The Dakota at 6,760-65 feet showed for 40 bbls. of oil, followed by water below that depth. The Continental Oil Co. and others' No. 1 Anthes, C NE NE Section 24-8n-59, 5 miles to the north of the gasser, cut the Muddy at 6,523-38 feet and continued on to the Dakota at 6,623-58 feet, in which it found water. It was plugged back to test the Muddy, which proved to be dry and the hole was abandoned. The Ramsey Petroleum Corp. then went three-quarters of a mile to the southwest of the gasser and drilled its No. 1 Scriven, C NW Section 22-7n-59, to 6,818 feet, finding the Muddy at 6,794-6,818 feet dry. The hole was left in condition to be deepened to the Lakota in the spring.

One other important wildcat was drilled on the Tercio Dome in Las Animas County, in the Continental Oil Co.'s No. 1 Maxwell Grant, NE NW NE Section 29-34-68, which found water in the Dakota at 1,343-52 feet and was abandoned.

COLORADO

Summary of Wells Completed in 1933

County—	Comp.	Prod.	Dry	Gas
Archuleta	2	0	2	0
Fremont	4	1	3	0
Grand	1	0	1	0
LaPlata	1	0	1	0
Las Animas	3	0	2	1
Larimer	4	0	4	0
Lincoln	1	0	1	0
Moffat	5	1,100	1	3
Montezuma	1	0	1	0
Rio Blanco	2	138	0	1
Weld	6	0	5	1
Total 1933	30	1,239	21	6
Total 1932	25	117	18	3
Difference	5	1,122	3	3

Completions by Months

	Comp.	Prod.	Dry	Gas
January	0	0	0	0
February	4	0	3	1
March	9	0	5	1
April	0	0	0	0
May	0	0	0	0
June	3	0	3	0
July	2	0	1	1
August	3	0	3	0
September	1	138	0	0
October	1	0	1	0
November	5	1,101	1	3
December	2	0	1	1
Total	30	1,239	21	6

Montana

The principal activity in Montana during 1933 was in the Cut Bank Field in Glacier County, in which 35 wells were completed as producers with an average of 77 bbls. initial production to the well. These extended the pool several miles to the northwest and slightly to the west. One dry hole was drilled in the field, but this failure was due to sand conditions and the limits of the pool have not as yet been determined in any direction.

At the close of the year the productive area had been developed in a northwest-southeast trend from the Santa Rita Oil & Gas Co.'s No. 2 Blackfeet, SE NW Section 15-35-6w, to the Montana Power Co.'s No. 1 Simereo, C N half Section 5-33-5w, a distance of 8½ miles. The widest point is approximately 3 miles, extending from William Fulton and others' No. 1 Haggerty, NE cor. Section 16-35-6w, to R. C. Tarrant's No. 1 Larson, C SW NE Section 12-34-6w. These outlying wells were typical of the wells on the inside. The Santa Rita's No. 2 Blackfeet was completed at 2,917 feet in the Cut Bank sand topped at 2,895 feet. The elevation is 3,874 feet. It swabbed 80 bbls. the first 24 hours and pumped 80 to 85 bbls. initial. The Montana Power No. 1 Simereo, which marks the development on the southeast, was completed late in 1932 at 2,792 feet for an

Colorado

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
CRAIG:													
Daily average	540	643	664	524	587	556	603	612	513	599	555	527	
Month	16,740	18,004	20,584	15,720	18,197	16,680	18,698	18,969	15,390	18,569	16,650	16,337	210,538
FORT COLLINS—WELLINGTON:													
Daily average	784	587	727	563	664	607	598	600	566	587	591	614	
Month	24,304	16,436	22,537	16,890	20,584	18,210	18,538	18,600	16,980	18,197	17,730	19,034	228,040
FLORENCE:													
Daily average	283	231	260	217	249	228	279	241	247	268	218	282	
Month	8,773	6,468	8,060	6,510	7,719	6,870	8,634	7,469	7,410	8,308	6,540	8,742	91,493
ILES:													
Daily average	538	499	508	482	611	573	562	561	563	565	689	911	
Month	16,678	13,972	15,748	14,460	18,941	17,190	17,434	17,392	16,890	17,515	20,670	28,241	215,131
ORCHARD:													
Daily average	191	199	145	120	143	151	141	104	134	128	130	114	
Month	5,921	5,572	4,495	3,600	4,433	4,530	4,375	3,236	4,020	3,965	3,900	3,534	51,584
RANGELY:													
Daily average	96	51	59	81	79	80	93	90	99	103	101	80	
Month	2,976	1,428	1,829	2,430	2,449	2,400	2,863	2,800	2,970	3,193	3,030	2,480	30,848
TOW CREEK:													
Daily average	259	267	264	222	275	243	257	212	231	215	213	211	
Month	8,029	7,476	8,184	6,660	8,525	7,290	7,973	6,584	6,930	6,665	6,390	6,541	87,247
Daily average	2,691	2,477	2,627	2,209	2,608	2,439	2,533	2,420	2,353	2,465	2,497	2,739	2,506
Total 1933	83,421	69,356	81,437	66,270	80,848	73,170	78,515	75,040	70,590	76,415	74,910	84,909	914,881
Total 1932	107,384	104,052	111,817	101,580	100,440	89,520	90,179	76,981	86,580	83,793	82,200	80,538	1,114,064
Total 1931	131,471	119,336	122,295	122,910	129,270	132,960	127,286	106,575	127,320	138,043	115,950	119,443	1,492,862
Total 1930	151,187	146,860	144,274	133,590	137,175	136,950	139,252	131,688	125,430	131,192	122,010	124,031	1,623,639
Total 1929	215,016	182,280	213,125	197,130	223,727	224,220	213,838	212,009	183,480	167,958	163,830	164,984	2,361,595
Total 1928	234,635	232,625	259,563	203,610	204,383	218,940	258,805	234,608	208,830	262,136	220,350	311,699	2,744,184
Total 1927	215,016	223,356	242,947	274,620	239,165	217,200	232,926	226,021	204,150	220,596	220,050	205,623	2,722,670

Montana

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
BANNATYNE:													
Daily average	32	36	35	35	35	33	33	32	33	81	80	76	
Month	992	1,008	1,085	1,050	1,085	990	1,012	1,000	990	2,511	2,400	2,170	16,293
BORDER:													
Daily average	410	777	707	359	345	346	382	383	397	218	214	340	
Month	12,710	21,756	21,917	10,770	10,695	10,380	11,835	11,887	11,910	6,758	6,420	10,540	147,573
CAT CREEK:													
Daily average	749	650	748	716	703	712	744	706	695	688	692	675	
Month	23,219	18,200	23,188	21,480	21,793	21,360	23,075	21,881	20,850	21,328	20,760	20,925	258,059
CUT BANK:													
Daily average	161	285	194	467	452	827	806	922	1,103	1,177	1,116	1,166	
Month	4,991	7,980	6,014	14,010	14,012	24,810	25,000	28,578	33,090	36,487	33,480	36,146	264,598
DRY CREEK:													
Daily average	35	.....	84	251	345	671	316	419	238	496	906	405	
Month	1,085	.....	2,604	7,530	10,695	20,130	9,805	12,998	7,140	15,376	27,180	12,555	127,098
KEVIN-SUNBURST:													
Daily average	3,081	2,582	2,784	3,177	3,170	3,196	3,802	3,670	3,428	3,318	3,507	3,280	
Month	95,511	72,296	86,304	95,310	98,270	95,880	117,846	113,773	102,840	102,858	105,210	101,680	1,187,778
LAKE BASIN:													
Daily average	52	61	48	47	48	53	50	50	50	48	52	49	
Month	1,612	1,708	1,488	1,410	1,488	1,590	1,550	1,550	1,500	1,488	1,560	1,519	18,463
PONDERA:													
Daily average	1,386	997	963	925	903	940	965	898	948	875	661	651	
Month	42,966	27,916	30,008	27,750	27,993	28,200	29,929	27,851	28,440	27,125	19,830	20,181	338,189
Daily average	5,906	5,338	5,568	5,977	6,001	6,778	7,098	7,080	6,892	6,901	7,228	6,636	6,460
Total 1933	183,086	150,864	172,608	179,310	186,031	203,340	220,052	219,518	206,760	213,931	216,840	205,716	2,358,056
Total 1932	173,569	166,373	189,224	223,830	233,647	210,060	218,364	198,865	192,930	188,232	154,530	170,531	2,320,155
Total 1931	243,133	249,900	258,385	249,840	254,138	246,450	247,287	227,974	236,100	226,734	175,260	232,500	2,847,201
Total 1930	253,456	233,408	267,561	298,410	304,172	289,350	304,203	301,165	256,380	234,360	239,050	223,293	3,203,808
Total 1929	261,299	257,656	293,973	298,830	350,238	347,610	347,448	356,190	332,940	335,544	320,490	324,849	3,827,067
Total 1928	363,370	335,679	358,112	350,520	338,272	313,260	317,626	328,600	326,670	296,980	307,440	347,320	3,998,549
Total 1927	426,498	399,868	452,600	417,000	434,155	462,330	456,847	497,364	413,280	425,947	379,560	403,434	5,171,383

initial production of 102 bbls. The pay was at 2,749-54 feet. Tarrant's No. 1 Larson, which marked the drilling on the east side, cut the Cut Bank sand at 2,715-53 feet and flowed natural 200 bbls. first 24 hours. The Fulton well on the west side swabbed 106 bbls. at 3,034 feet first 24 hours, but later showed some water. All other drilling was inside of these limits.

The most important feature of the development was the completion of several other wells which flowed natural in addition to the No. 1 Larson. The Santa Rita's No. 1 Cardwell, C NE SE Section 15-35-6w, flowed an average of 203 bbls. initial, and R. C. Tarrant's No. 1 Miller, C NE NE Section 24-34-6w, flowed at the rate of 450 bbls. per day. These disclosed that the field has greater possibilities than previously expected. The fact that one well was dry and several others made only 10 to 15 bbls. initial indicates that production is spotted and will vary to a considerable extent, depending upon the thickness and porosity of the sand.

During the year geologists, representatives of the State Railroad Commission and the U. S. Bureau of Mines held a meeting and agreed on a correlation of the producing sands in the field. It was decided hereafter that the lower sand formerly known as the Darling shall be named the Cut Bank sand and the upper horizon, formerly the Stewart, will be named the Sunburst, after the sand of that name in the Kevin-Sunburst Field.

Representatives of the operators also reached an agreement that in the preliminary development of the field wells will be spaced in the center of 40-acre tracts in order to reduce the number of required offsets and to lower the cost of development. Another agreement was reached as to the amount and sizes of casing to be used. This resulted from the introduction of rotaries into the drilling campaign.

A discovery which may lead to the opening of a new pool was made in the Santa Rita Oil & Gas Co. and P. T. Sweeney's No. 1 Jacobson, C NW NW Section 23-37-5w, in Glacier County, 3 miles south of the Canadian boundary and 13 miles north of the nearest producer in the Cut Bank Field. It had 1,000,000 feet of gas and a show of oil in the top of the Sunburst (Stewart) sand at 2,561 feet and topped the Cut Bank (Darling) sand at 2,625 feet and flowed by heads. It was deepened to 2,633 feet and ran into water. It was then plugged back to 2,628 feet and completed for 62 bbls. on the pump first 20 hours. It showed a little water. The oil is 28 gravity and different grade from that found in the Cut Bank Field. The Yukon Oil Co. then drilled an offset on the north in its No. 1 Kruger, C SW SW Section 14-37-5w, went 3 feet into the Madison at 2,775 feet, total depth, and then was abandoned. These were the only wells drilled and the direction of the production trend and the size of the pool remain to be determined.

The Dry Creek Field in Carbon County was extended a half mile to the north in the Ohio Oil Co.'s No. 9 Souder, C NE SW Section 2-7s-21, which made 1,000 bbls. per day initial from the Lakota sand at 5,471-5,502 feet. This well, completed early in the summer, ended the drilling on the structure for the year.

MONTANA

Summary of Wells Completed in 1933

County—	Comp.	Prod.	Dry	Gas
Carbon	3	1,150	1	0
Carter	1	0	1	0
Fergus	1	0	1	0
Glacier	44	3,030	2	7
Hill	1	0	0	1
Judith Basin	1	0	1	0
Liberty	2	23	0	0
Musselshell	1	0	1	0
Petroleum	2	0	2	0
Phillips	1	0	0	1
Sweetgrass	1	0	1	0
Toole	16	86	7	3
Yellowstone	1	0	1	0
Total 1933	75	4,289	18	12
Total 1932	62	9,057	26	6
Difference	13	4,768	8	6

Completions by Months

	Comp.	Prod.	Dry	Gas
January	2	60	1	0
February	7	277	2	0
March	2	75	0	1
April	3	65	0	1
May	2	195	0	0
June	2	584	0	0
July	5	1,200	0	0
August	8	354	0	1
September	17	409	7	3
October	7	585	2	0
November	12	270	4	4
December	8	215	2	2
Total	75	4,289	18	12

Wyoming

Drilling operations in Wyoming in 1933 in the proven fields were almost at a standstill with a few exceptions and wildcatting was limited to a smaller number than usual of isolated tests. There were no new pools discovered and none of the producing fields were extended in area except that the Osage Pool in Weston County was developed half a mile or more out beyond the old limits on the west.

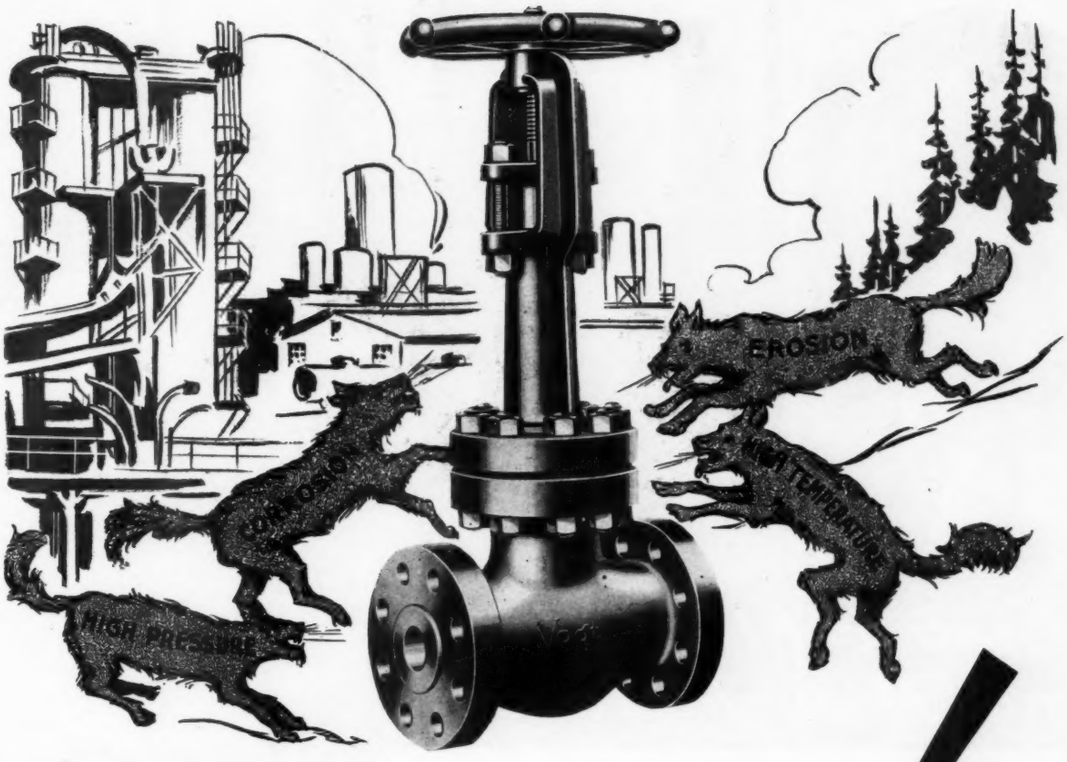
The Osage Field was the most active in the State with 20 wells completed with an initial production of 1,070 bbls., this pool accounting for about half of the new production developed in the State.

Five gas wells were drilled in the Baxter Basin area in Sweetwater County and new production of 73,000,000 feet per day, open flow, was developed. Four of these were drilled in proven territory by the Mountain Fuel Supply Co. and one was drilled by the Wyoming-California Petroleum Co. as a deep test,

Wyoming

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
BIG MUDDY:													
Daily average	1,899	1,848	1,885	1,759	1,833	1,817	1,714	1,722	1,777	1,687	1,692	1,747	
Month	58,869	51,744	58,425	52,770	56,823	54,510	53,132	53,374	53,310	52,297	50,760	54,157	650,181
DALLAS-DERBY:													
Daily average	551	491	228	520	541	536	487	398	326	276	279	307	
Month	17,081	13,748	7,068	15,600	16,771	16,080	15,093	12,338	9,780	8,556	8,370	9,517	150,002
DUTTON CREEK:													
Daily average	73	41	55	69	77	44	69	85	64	62	70	92	
Month	2,263	1,148	1,705	2,070	2,387	1,320	2,143	2,644	1,920	1,922	2,100	2,852	24,474
ELK BASIN:													
Daily average	569	533	598	578	535	562	525	548	542	536	562	552	
Month	17,639	14,924	18,538	17,340	16,585	16,860	16,261	16,978	16,260	16,616	16,860	17,112	201,973
FERRIS:													
Daily average	19	20	17	21	18	457	14	43	16	.....	.....	.....	
Month	589	560	527	630	558	13,710	444	1,323	480	.....	.....	.....	18,821
FRANNIE:													
Daily average	297	322	288	190	195	236	209	207	236	236	239	233	
Month	9,207	9,044	8,928	5,700	6,045	7,080	6,471	6,407	7,080	7,316	7,170	7,223	87,671
GRASS CREEK:													
Daily average	1,685	1,699	1,771	1,678	730	312	.....	.....	.....	.....	677	608	
Month	52,235	47,572	54,901	50,340	22,630	9,360	.....	.....	.....	.....	20,310	18,848	276,196
HAMILTON:													
Daily average	.....	.....	273	701	854	848	871	883	533	758	647	636	
Month	.....	.....	8,463	21,030	26,474	25,440	27,014	27,368	24,990	23,498	19,410	19,716	223,403
LABARGE:													
Daily average	1,035	993	938	854	774	1,002	1,186	1,029	959	971	1,110	977	
Month	32,085	27,804	29,078	25,620	23,994	30,060	36,751	31,907	28,770	30,101	33,300	30,287	359,757
LANCE CREEK:													
Daily average	66	70	66	89	64	204	57	17	30	9	205	136	
Month	2,046	1,960	2,046	2,670	1,984	6,120	1,765	531	900	279	6,150	4,216	30,670
LOST SOLDIER:													
Daily average	1,786	1,379	1,364	1,454	1,932	1,873	1,823	1,631	1,649	1,655	1,724	1,565	
Month	55,366	38,612	42,284	43,620	59,892	56,190	56,529	50,549	49,470	51,305	51,720	48,515	604,052
POISON SPIDER:													
Daily average	61	53	206	115	338	190	749	759	1,019	887	240	.....	
Month	1,891	1,484	6,386	3,450	10,478	5,700	23,214	23,521	30,570	27,497	7,200	.....	141,391
OREGON BASIN:													
Daily average	295	219	101	134	515	235	1,099	1,083	408	197	205	1,265	
Month	9,745	6,132	3,131	4,020	15,965	7,050	34,071	33,574	12,240	6,107	6,150	39,215	176,800
OSAGE:													
Daily average	695	910	870	719	549	686	548	608	367	885	874	887	
Month	21,545	25,480	26,970	21,570	17,019	20,580	17,000	18,863	26,010	27,435	26,220	27,497	276,189
ROCK CREEK:													
Daily average	1,315	1,368	1,415	1,407	811	1,190	1,265	1,234	1,272	1,204	1,143	1,290	
Month	40,765	38,304	43,865	42,210	25,141	35,700	39,212	38,250	38,160	37,324	34,290	39,990	453,211
SALT CREEK:													
Daily average	20,604	19,937	20,399	18,863	19,699	19,116	13,895	18,757	19,400	18,526	18,465	18,370	
Month	638,724	558,236	632,369	565,890	610,669	573,480	585,747	581,453	582,000	574,306	553,950	569,470	7,026,294
BYRON-GARLAND:													
Daily average	128	120	199	232	96	178	1,138	1,133	897	965	972	426	
Month	3,968	3,360	6,169	6,960	2,976	5,340	35,281	35,113	26,910	29,915	29,160	13,206	198,358
PILOT BUTTE:													
Daily average	.....	.....	.....	32	32	.....	30	32	31	30	28	29	
Month	.....	.....	.....	960	992	.....	932	992	930	930	840	899	7,475
TEAPOT:													
Daily average	.....	25	19	17	16	21	20	19	20	24	20	22	
Month	.....	700	589	510	496	630	620	600	600	744	600	682	6,771
GREYBULL:													
Daily average	8	9	7	5	6	.....	10	10	10	8	10	10	
Month	248	252	217	150	186	.....	310	310	300	248	300	310	2,831
MIDWAY:													
Daily average	106	108	155	118	113	76	74	113	94	112	74	75	
Month	3,286	3,024	4,805	3,540	3,503	2,280	2,281	3,503	2,820	3,472	2,220	2,325	37,059
MULE CREEK:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	12	170	.....	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	372	5,100	.....	5,472
BADGER BASIN:													
Daily average	48	46	45	43	44	40	52	52	42	41	39	40	
Month	1,488	1,288	1,395	1,290	1,364	1,200	1,609	1,600	1,260	1,271	1,170	1,240	16,166
HUDSON:													
Daily average	350	364	351	364	388	372	390	363	254	279	206	224	
Month	10,850	10,192	10,881	10,920	12,028	11,160	12,085	11,238	7,620	8,649	6,180	6,944	118,747
REX LAKE:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	33	25	.....	.....	
Month	.....	.....	.....	.....	.....	.....	.....	.....	990	775	.....	.....	1,765
Daily average	31,590	30,556	31,250	29,962	30,160	29,995	31,225	30,726	30,779	29,385	29,651	29,491	30,391
Total 1933	979,290	855,568	968,750	898,860	934,960	899,850	967,959	952,436	923,370	910,935	889,530	914,221	11,095,729
Total 1932	1,010,445	1,093,097	1,189,997	1,103,310	1,157,323	1,048,080	1,152,270	1,167,615	1,074,990	1,007,376	1,007,700	982,545	12,994,748
Total 1931	1,358,234	1,254,568	1,264,366	1,329,390	1,329,652	1,278,720	1,225,802	1,173,784	1,110,930	1,102,267	1,119,450	1,145,109	14,692,272
Total 1930	1,430,898	1,409,184	1,587,665	1,527,930	1,565,283	1,406,850	1,464,378	1,449,436	1,512,690	1,516,489	1,384,530	1,484,684	17,740,017
Total 1929	1,512,087	1,442,336	1,599,104	1,490,430	1,581,806	1,520,160	1,674,434	1,764,396	1,652,760	1,643,775	1,586,700	1,603,630	19,071,618
Total 1928	1,756,505	1,598,602	1,714,889	1,748,520	1,908,918	1,834,410	1,852,684	1,909,476	1,791,900	1,915,397	1,762,980	1,609,179	21,403,460
Total 1927	1,870,727	1,678,180	1,840,439	1,838,070	1,896,301	1,852,920	1,898,626	1,688,725	1,577,700	1,550,620	1,563,210	1,728,157	20,983,675



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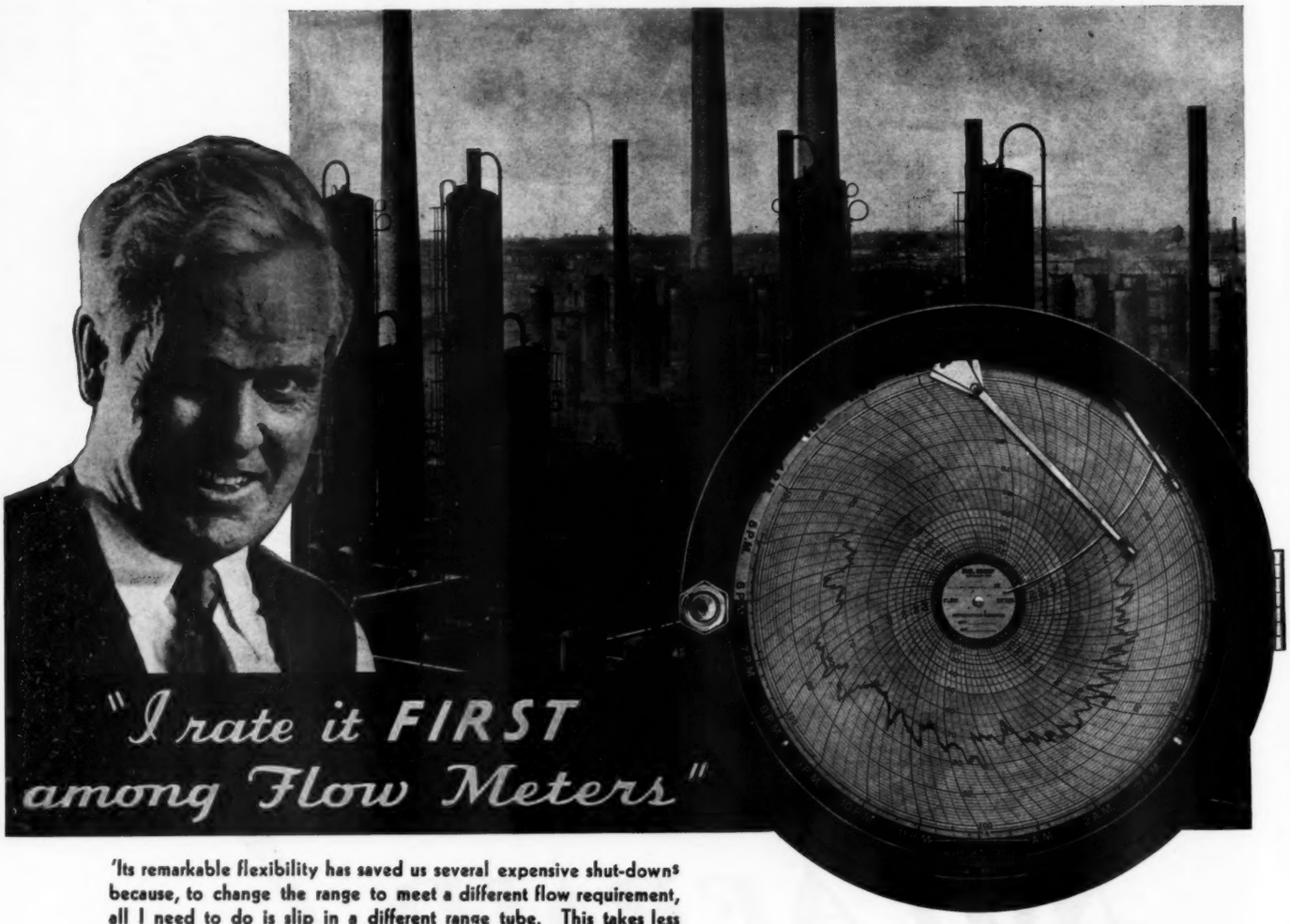

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but was completed as a gas well in upper horizons on account of a bad hole.

There were no wells drilled in Salt Creek during the year and the operation of the field by the Stanolind Oil & Gas Co. for the Mountain Producers Corp. and the Salt Creek Producers Association continued as usual. However, near the end of the year new contracts were signed for the operation of the properties beginning with 1934. The two producing companies, through their subsidiaries, took over the operation of the properties on January 1, 1934. The Stanolind Co. will do the field work under the direction of the producing companies and under the supervision of the same staff of experts as in the past, charging cost of this work. The Standard Oil Co. (Indiana) contracted to purchase the production at posted field prices.

The only drilling in the Big Muddy Field was the completion of a test well to the Sundance formation by the Continental Oil Co. in its No. 30 Glenrock Sheep, SW SE SE Section 4-33-76. It found water in the Sundance at 4,767 feet, total depth, plugged the hole back to the Dakota and completed it as a small pumper.

Drilling in Lance Creek was restricted to several old wells deepened to the Lakota to increase gas production.

The Continental Oil Co. and V. M. Kirk each drilled a well in the Frannie Pool in Park County, the first producing 388 bbls. and the other 1,000 bbls. initial. Both were in proven territory.

WYOMING

Summary of Wells Completed in 1933

County—	Comp.	Prod.	Dry	Gas
Big Horn	2	10	2	0
Carbon	6	100	1	4
Converse	3	8	2	0
Fremont	1	0	0	1
Lincoln	2	0	2	0
Natrona	8	52	5	0
Niobrara	4	0	1	3
Park	3	846	0	1
Platte	1	0	1	0
Sublet	4	15	3	0
Sweetwater	5	0	0	5
Uinta	2	0	2	0
Weston	20	1,073	5	0
Total 1933	62	2,104	24	14
Total 1932	61	3.392	24	6
Difference	1	1,288	0	8

Completions by Months

	Comp.	Prod.	Dry	Gas
January	1	100	0	0
February	7	366	5	0
March	0	0	0	0
April	2	0	1	1
May	4	50	1	1
June	2	15	1	0
July	10	30	5	3
August	8	28	2	3
September	5	177	2	0
October	12	665	5	2
November	6	558	1	2
December	5	115	1	2
Total	62	2,104	24	14

The Mutual Oil Syndicate continued the development of gas in the Dutton Creek Field in two wells to the Shannon sand and put down one deep test to the Muddy, the latter being completed for 105 bbls. initial, at 4,873 feet. The deep test added only a few locations to the proven area for the Muddy.

The Ohio Oil Co. drilled several gas wells on the Allen Lake Dome in Carbon County, one of which, its No. 2 A. J. Hazlett, NE cor. Section 34-23-79, developed 17,000,000 feet, open flow, in the Morrison sand at 2,179 feet. It found water in the Sundance and was plugged back, and No. 1 Hazlett then began deepening as a test to the Pennsylvanian.

The Texas Co. completed a deep test in the Alkali Butte Field, in Fremont County, in its No. 2 State-Ridgway, SE SW SW Section 36-34-95. It was drilled through the Sundance and into the red beds at 5,412 feet, total depth. Nothing of value was found and it was plugged back to the Dakota and completed at 4,600 feet as a 6,000,000-foot gas well.

Two other completions during the year worthy of note were the bringing in of a 15,000,000-foot gas well in a fault block at the south end of the Elk Basin Field by the Henderson Producing Co. in its No. 10, SW NE NE Section 31-58-99, and the abandonment of the Trans-Western Petroleum Co., Ltd.'s No. 1 Union Pacific, C SE Section 6-14n-118, on the Aspen structure in Uinta County, drilled by the E. L. Doheny interests. It was abandoned at 5,092 feet. It had a good show of gas at 4,062-4,101 feet.

One of the important developments in the State outside of drilling was a large increase in the number of small refineries located in or adjacent to the various pools. The total, including the larger refineries, is around 200. Many of these transport their crude from the fields in trucks and dispose of the products in their immediate vicinity.

Utah

There were no important completions in Utah during 1933 and wildcatting was very limited in extent. Several small producers in the proven Virgin Field in Washington County, were completed in a shallow sand at a depth of a few hundred feet and three shallow wells were abandoned in San Juan County.

UTAH

Summary of Wells Completed in 1933

County—	Comp.	Prod.	Dry	Gas
Grand	1	0	1	0
Washington	3	2	2	1
Total 1933	4	2	3	0
Total 1932	1	35	0	0
Difference	3	33	2	0

Completions by Months

	Comp.	Prod.	Dry	Gas
January	2	0	2	0
June	2	2	1	0
Total	4	2	3	0

Canadian Production Likely to Continue Gain Begun in Later Months of the Past Year

By VICTOR LAURISTON
Staff Correspondent, Canadian Fields

After a marked drop in production in 1932, the Canadian petroleum yield in 1933 showed a small but definite upturn. This was somewhat more pronounced in the closing months of the year; indicating that the upturn is likely to continue in 1934.

While revised official figures of the Canadian petroleum production for 1933 are not available, careful estimates place the year's total for all Canadian fields at 1,126,100 bbls. This compares with a total (revised) for 1932 of 1,044,412 bbls., representing an increase of 7.8 per cent. In practically all the tables the December figures are estimates.

The three petroleum producing provinces all showed increased totals over the 1932 figures. Comparative figures for the three provinces for 1933 and 1932 are as follows:

	1933	1932	Pct. gain
New Brunswick	9,105	6,408	42.0
Ontario	136,587	103,336	5.1
Alberta	999,696	917,622	8.0

The gain in production was achieved without the bringing in of any important new field, and with the completion of only a few new producing wells. A number of causes contributed. Two of these affected the Turner Valley Field in Alberta, which contributes the major part of the Canadian production. One such cause was the modification of the Alberta government's gas conservation measures, permitting a larger wet gas production and consequently a larger crude naphtha recovery from the Madison lime. Another was the completion, early in May, of the Royalite Oil Co.'s gasoline absorption plant, insuring a practically complete crude naphtha recovery from the wet gas processed in the plant.

In the older fields of Ontario and New Brunswick, increased production was due to reconditioning of the wells and the adoption of more efficient methods. In the Ontario fields a number of important properties taken over by drillers returned from foreign fields have shown increased production as a result of more modern methods.

Natural Gas Production

Natural gas production during 1933 continued to decline. Official estimates place the 1933 yield at 22,812,640,000 feet, a drop of 2.1 per cent from the 1932 output of 23,420,174,000 feet. The comparative figures for the various provinces are as follows, in thousands of feet:

	1933	1932
New Brunswick	592,242	644,000
Ontario	6,793,555	6,735,000
Alberta	15,426,243	16,275,000

Manitoba has a nominal production estimated around 600,000 feet.

Alberta Fields

In Alberta, the Turner Valley Field continued the most important factor in oil production, contributing the larger part of the entire Canadian output. It was the only field in Alberta to record a gain for 1933. The increase was largely in the later months of the year, completion of the Royalite Oil Co.'s gasoline absorption plant being partly responsible. Comparative figures for the various months of 1932 and 1933, in barrels, are as follows:

Month—	1932	1933
January	68,983	43,989
February	67,789	38,807
March	71,533	48,900
April	65,691	45,763
May	65,709	64,601
June	64,324	67,072
July	57,141	63,000
August	55,027	68,339
September	45,869	67,412
October	46,409	79,272
November	46,710	72,456
December	53,748	79,878
Total	708,933	739,489

Pipe line runs to the large Calgary refineries are, however, supplemented by sales to consumers in the field, so that the actual output is considerably larger than these figures indicate. The difference is shown in the Alberta government figures for the various pools. Comparative figures for 1932 and 1933, in barrels, are as follows:

Field—	1932	1933
Turner Valley, naphtha	878,612	938,604
Turner Valley, light crude	21,564	24,840
Red Coulee, light crude	34,956	31,089
Wainwright heavy crude	6,889	5,163

The Red Coulee figures include a nominal production from the Keho Lake Field.

Turner Valley Field

There was a considerable revival of drilling in the Turner Valley Field. The feature in the early months was completion of Mar Jon-Freehold's No. 1, in LSD 9, Section 28-18-2w5, with crude naphtha recovery estimated at 460 bbls. flush production, from the Madison. This extended the field south and west. Half a dozen new tests were started in or close to Section 28.

North of the Mar Jon-Freehold well, Sterling Royalties' No. 1, LSD 1, Section 33-18-2w5, finished with a gas flow estimated at 35,000,000 feet, and initial crude naphtha recovery of better than 400 bbls. from the Madison lime. Miracle Oils' No. 2, LSD 16, Section 5-19-2w5, at around 6,800 feet got a flow of light crude, around 150 bbls., from the Madison. This well indicated that tests west might secure light crude rather than naphtha.

Three tests were undertaken on a potential extension a mile south of the Mar Jon-Freehold well. Hoffar-Lundy Syndicate's No. 1, LSD 13, Section 22-18-2w5, was too far west and proved off structure, abandoned at 4,300 feet. Two tests farther east are logging satisfactorily.

South Turner Valley got most of the 1933 drilling activity, a feature being resumption of work by Imperial Oil, Ltd., which, through its subsidiary, Northwest Co., is drilling on Calgary & Edmonton Corp. acreage in Section 27-18-2w5.

In Central Turner Valley, McLeod Oil Co.'s No. 4, LSD 16, Section 1-20-3w5, was left standing at 7,755 feet, though not abandoned. McLeod's No. 1, same LSD, was deepened to increase production. New McDougall-Segur Oil Co.'s No. 6, LSD 11, Section 12-20-3w5, got flush production of 80 bbls. of 55 gravity crude above the lime. Three other tests were intermittently active.

In North Turner Valley, United Oils' No. 4, LSD 2, Section 24-20-3w5, was plugged back to the Dalhousie sand but failed. Model Oils' No. 2 Anaconda, LSD 16, Section 22-20-3w5, after drilling into the lime at 6,150 feet, was plugged back, shot, treated with acid, and finished a small naphtha producer, around 25 bbls.

Border Fields

Probably the most interesting test in the border fields was drilled by Nordon Corp. and C. A. Roney in LSD 11, Section 2-2-20w4, on the Twin River structure south of Lethbridge. Like the test by Parco Oil Co., it got a show of high grade crude on top of the Madison lime; but owing to mishaps, including burning of the outfit, a production test has not yet been completed.

In the Alberta end of Red Coulee Field, Devonshire Oils' No. 1, LSD 3-4, Section 10-1-16w4, and Skov Oil Co.'s No. 1 Kotop, LSD 2, Section 2-1-17w4, failed. On the Keho Lake structure, Hudson's Bay Oil & Gas Co.'s No. 1 Keho, LSD 2, Section 17-11-22w4, tested an oil show in the Madison and finished with a yield of around 5 bbls. a day, from a stray sand in the overlying Benton.

On the Milk River structure, Commonwealth Petroleums' No. 1, deep test, LSD 8, Section 9-3-15w4, after encountering numerous small shows, was abandoned at 5,310 feet.

Two interesting tests were started, Rialto Oils' No. 1, LSD 4, Section 15-1-9w4, on the Alberta end of the Reserve Dome, and Royalty Holding's No. 1, Section 9-1-5w4, on the Comrey structure, the latter on acreage of Imperial Oil, Ltd.

Central and Northern Alberta

In the Wainwright Field, East Central Alberta, drilling was restricted to cleaning out and deepening of producers. Farther north, Frontier Development's No. 1, wildcat, LSD 2, Section 1-55-13w4, on the Two Hills structure, finished in salt water at 2,000 feet after getting a good-looking sand. Late in 1933, Frontier's No. 1 Brosseau was started in LSD 8, Section 36-55-12w4.

In the Athabaska district, Athadome Oils' No. 2, LSD 3, Section 15-66-23w4, got a 50-foot sand around 1,650 feet, yielding about 20 bbls. of 13 gravity asphaltic crude. It was continued to 2,504 feet, getting a noncommercial show in the lime at 2,375 feet; and plans are being made for development of the upper oil horizon and refining of the heavy crude in the field.

British Columbia Drilling

Several tests were active in British Columbia but none was a producer. A test by Noble Francis Syndicate south of New Westminster got a fair flow of gas at shallow horizons. In the Kelowna district, Okanagan Oil & Gas Co. continued drilling while an important new test by Columbia Oils in the Sage Creek Field was carried to 1,525 feet before the end of the year.

East Texas' Production in 1933 Surpassed All Previous Records for High Grade Fields

By L. E. BREDBERG

President Roosevelt, his National Recovery Act and the sending of Federal investigators into the East Texas Field by the Department of the Interior after the Federal orders were published in regard to making interstate shipments of "hot oil" or refined products manufactured from "hot oil" are given all the credit for reversing the situation in the East Texas Field during the last six months of 1933 from what it was during the first six months. The State failed to cope with the situation, but with the help of the Federal Government conditions changed immediately. Federal courts have so far upheld the commission in suits brought against and by the Federal Government, and production in the last of the year was held to the point where pressures were increasing instead of falling several pounds per month as they were doing the fore part of the year.

The ultimate production of the East Texas Field will never be known exactly because of the millions of barrels of oil produced and shipped illegally, that is, contrary to the orders of the State Railroad Commission.

The production of 1933 doubtless will be variously given. The production as given by The Oil and Gas Journal was 202,869,340 bbls. The U. S. Bureau of Mines figures for the whole year will not be available until late in February but for the first 11 months of 1933 they totaled 185,397,000 bbls. while for the first 11 months The Oil and Gas Journal figures are 189,380,649 bbls. Both are considerably higher than the estimates made for the same period by the American Petroleum Institute. It will be interesting to know at what figure the Texas Railroad Commission places the production of the field for the year. There is no doubt that the actual production of the field was higher than any of the above mentioned agencies will give it. No one will ever know how much oil was sneaked out of East Texas by operators who had spot need for cash so often that they practically gave away 50 per cent or more of the oil they thus disposed of.

Curtailment Increased Prices

One great result of curtailment was the advancement of the crude price from 10 cents per barrel where it had fallen during the fore part of the year to 50 cents per barrel in June when the Government decided to take a hand in oil production, and on up to $1 per barrel in September.

Advancing the price of crude was in part responsible for the drilling of many more wells during the last half than the fore part of the year. The independent per well allowable also had much influence on drilling activities, as did the desire for cutting down the well density by many of the companies which had low well density on their leases while smaller operators had cut their density down to about one well to each seven acres. During the first half of the year about 20 wells per week were completed, while during the last five months in the year completions hovered around 90 each week. This brought the total number of producers to the 11,700 mark or about 2,500 more than at the beginning of the year.

Big Investment in Equipment

During the first half of the year when the daily allowable was high and there was much overproducing taking place with a consequent fall in bottom hole pressures, many of the companies and independent operators installed several million dollars worth of various types of pumping equipment preparing their wells for the time when pressures would fall to such a point that artificial means of raising the oil would be necessary. However, after the Federal Government stepped in the field was curtailed and held to a much lower allowable than it had been producing, pressures began to go back up, and as a result much of the installed pumping equipment has never been used. It was a good time to purchase and install such equipment, due to low prices, therefore the companies probably made no mistake in making pumping installations even though they are not needed for some time.

In November well pressures rose 13 pounds. However, such an increase cannot continue in the field and the leveling off place can be expected this year, but when, no one can prophesy. If no major fields are brought in within the next six months a demand for a greater allowable from East Texas can be expected. This will tax the field so as to cause bottom hole pressures to sag again, and more wells can be expected to go on the pump under such conditions.

Wells in the field were prorated on the per well and bottom hole pressure basis, and later prorated on bottom hole, per well, sand thickness, permeability, porosity and saturation basis. However, this plan was attacked in Federal court and a new plan, the potential plan instituted. This plan is still in force in the field. Some 300 key wells scattered throughout the field are given potential tests on two-hour gauges and the daily allowable for other wells within the unit of the key wells is based on the potential of the key wells. This method seems to have met with the approval of nearly all operators in the field, and is the only method which has met with success through court trials, a Federal court having upheld it.

Producers Enjoined

At the present time decision is being upheld on a case in which a recent Railroad Commission order was attacked by a group of East Texas operators and refiners. Federal Judge Randolph Bryant granted the Federal Government a temporary injunction to prevent the plain-

(Continued on Page 76)

East Texas

Daily Average and Monthly Production in 1933

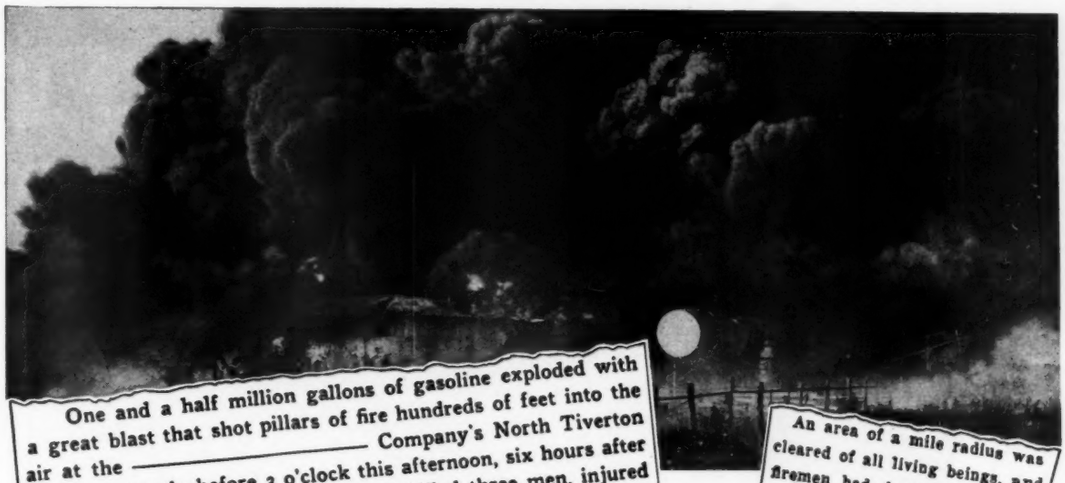
	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
JOINER:													
Daily average	97,761	112,297	162,976	111,095	288,778	234,851	185,387	168,842	155,679	146,990	122,907	119,114	
Month	3,030,591	3,144,311	5,052,256	3,332,847	8,952,115	7,045,540	5,747,000	5,234,110	4,670,370	4,556,678	3,687,219	3,692,527	58,145,564
KILGORE:													
Daily average	109,039	123,330	176,086	104,317	303,641	275,477	203,116	186,941	172,360	162,764	135,441	131,207	
Month	3,380,209	3,453,244	5,458,659	3,129,510	9,412,875	8,264,315	6,296,590	5,795,174	5,170,800	5,045,688	4,063,230	4,067,423	63,537,717
LONGVIEW:													
Daily average	130,605	144,429	220,805	148,463	417,986	253,293	278,974	247,673	227,949	215,211	189,109	184,798	
Month	4,048,755	4,044,019	6,844,957	4,453,893	12,957,555	7,598,785	8,648,215	7,677,860	6,838,464	6,671,545	5,673,270	5,728,741	81,186,059
Daily average	337,405	380,056	559,867	363,875	1,010,405	763,210	667,477	603,456	555,988	524,966	447,457	435,119	555,806
Total 1933	10,459,555	10,641,574	17,355,872	10,916,250	31,322,546	22,908,640	20,691,805	18,707,144	16,679,634	16,273,911	13,423,719	13,488,691	202,869,340
Total 1932	10,267,192	8,988,703	10,141,772	10,659,801	10,707,333	9,997,238	10,331,490	10,200,318	11,193,021	11,235,554	10,662,484	7,569,493	121,944,399
Total 1931	110,515	701,739	2,900,925	7,479,766	9,658,710	10,680,539	14,157,981	16,813,815	11,156,105	12,690,978	11,716,113	9,660,736	107,727,912

East Central Texas

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
LONG LAKE:													
Daily average											83	46	
Month											2,497	1,431	3,928
BOGGY CREEK:													
Daily average	1,050	965	934	913	850	880	801	842	740	663	580	586	
Month	32,555	27,025	28,958	27,395	26,355	26,411	24,831	26,109	22,191	20,557	17,414	18,154	297,955
CURRIE:													
Daily average	169	163	164	153	161	157	142	135	137	151	128	110	
Month	5,233	4,568	5,080	4,598	4,997	4,707	4,402	4,181	4,117	4,683	3,842	3,418	53,826
MEXIA:													
Daily average	2,550	2,501	2,495	2,471	2,446	2,419	2,355	2,333	2,377	2,270	2,252	2,235	
Month	79,057	70,022	77,340	74,120	75,820	72,566	73,005	72,326	71,317	70,362	67,569	69,284	872,788
POWELL:													
Daily average	2,727	2,765	2,759	2,778	2,749	2,331	2,726	2,713	2,770	2,781	2,747	2,709	
Month	84,535	77,425	85,523	83,342	85,215	69,930	84,506	84,092	83,087	86,211	82,404	83,983	990,257
RICHLAND:													
Daily average	32	32	33	31	32	30	39	37	40	37	38	33	
Month	990	890	1,027	937	998	913	1,209	1,154	1,209	1,144	1,144	1,019	11,490
SATIN:													
Daily average	30	23	20	19	10	11	7	4	4	3	3	3	
Month	935	640	625	565	315	324	217	126	119	91	86	87	4,133
VAN:													
Daily average	42,018	52,417	52,614	52,442	52,499	52,356	52,126	52,543	45,180	39,151	37,516	37,395	
Month	1,302,554	1,467,672	1,631,038	1,573,266	1,627,461	1,570,669	1,615,906	1,628,840	1,355,411	1,213,685	1,125,477	1,159,248	17,271,227
WORTHAM:													
Daily average	136	133	125	157	118	119	120	121	119	116	121	122	
Month	4,219	3,720	3,879	4,708	3,668	3,566	3,720	3,752	3,571	3,596	3,633	3,782	45,814
Daily average	48,712	58,999	59,144	58,964	58,865	58,303	58,311	58,728	51,367	45,172	43,469	43,239	53,569
Total 1933	1,510,082	1,651,962	1,833,473	1,768,931	1,824,829	1,749,086	1,807,796	1,820,568	1,541,010	1,400,232	1,304,066	1,340,406	19,552,541
Total 1932	1,495,327	1,535,106	1,704,902	1,663,745	1,765,831	1,817,113	1,779,953	1,751,048	1,630,753	1,580,769	1,469,078	1,559,702	19,753,328
Total 1931	1,249,782	1,185,856	1,455,154	1,509,950	1,689,453	1,787,686	1,687,421	1,692,488	1,730,323	1,734,887	1,770,544	1,671,358	19,164,902
TOTAL EAST TEXAS AND EAST CENTRAL TEXAS:													
Total 1933	11,969,637	12,293,536	19,189,345	12,685,181	33,147,374	24,657,726	22,499,601	20,527,712	18,220,644	17,674,243	14,727,785	14,829,097	222,421,881
Total 1932	11,762,519	10,523,809	11,846,674	12,323,546	12,473,164	11,814,351	12,111,443	11,951,366	12,823,774	12,816,323	12,131,562	9,129,196	141,697,727
Total 1931	1,360,297	1,887,595	4,356,079	8,989,706	11,348,163	12,468,225	15,845,402	18,506,303	12,886,428	14,425,865	13,486,657	11,332,094	126,892,814
Total 1930	669,323	678,455	813,799	1,030,567	1,194,501	1,229,886	1,259,256	1,246,657	1,228,947	1,320,710	1,257,992	1,266,110	13,196,403
Total 1929	675,021	579,471	666,569	605,389	608,505	577,820	600,851	582,362	549,000	580,595	536,912	651,062	7,213,557
Total 1928	797,384	727,284	780,967	727,455	736,122	706,269	713,628	723,016	711,450	709,120	657,810	705,002	8,695,507
Total 1927	1,479,568	398,788	1,442,554	1,254,690	1,066,028	1,032,720	1,002,230	960,659	873,720	929,845	856,470	865,334	13,162,026
Total 1926	1,928,851	1,759,548	1,822,614	1,763,970	1,703,853	1,557,780	1,662,437	2,198,365	1,865,970	1,731,598	1,558,890	1,734,047	21,287,923

7 TANKS IN THIS MILLION DOLLAR FIRE



One and a half million gallons of gasoline exploded with a great blast that shot pillars of fire hundreds of feet into the air at the _____ Company's North Tiverton oil plant shortly before 3 o'clock this afternoon, six hours after a blast at 9 o'clock this morning had killed three men, injured a half-dozen others and started a raging blaze that defied all efforts of scores of firefighters.

One after another, following the great gasoline explosion this afternoon, other tanks exploded, rocking the earth all about and filling the plant with acres of fluid fire.

Chaos reigned after the blasts and the entire plant, on the shore of Mount Hope Bay, was a mass of flame that spread rapidly in all directions.

The heat from the blaze was terrific. Firemen had to work for a few minutes at a time in relays, and an engine, sent to "snake out" the nine tank cars was unable to get within a quarter-mile of them. Early this afternoon, the company dock,

THE EVENING BULLETIN Nov.1.1933

An area of a mile radius was cleared of all living beings, and firemen had decided to let the fire run its course unless near-

BOSTON DAILY GLOBE Nov.2.1933

NORTH TIVERTON, R. I., on the morning of Nov. 1 last year, was the scene of the most disastrous fire in years.

It covered a plant of 50 acres and raged for more than two days. The tanks were of 10,000 to 80,000-barrel capacities containing gasoline, kerosene and fuel oil.

YET ONE TANK—the only one protected by an OCECO Flame Arrestor—WAS SAVED

This photograph, taken after the fire, tells the story. Regardless of the size or intensity of the conflagration, no gas-tight tank equipped with an Oceco Flame Arrestor has ever been lost by fire.

OIL CONSERVATION ENGINEERING CO., 877 Addison Road, Cleveland, Ohio

90 West St., New York—Box 552, Beaumont, Texas—P. O. Box 1387, Tulsa, Okla.—Marquette Bldg., Chicago, Ill.

"Say Mister, I've Got the Answer..."

After having used Colox on a few wells I knew what it did to improve our mud, but I was always curious to know *why* it helped. I know now and I'm passin' it on to you. Colox makes a heavier mud and stays thin and pumpable. Anyone can see that up on top; but when it's down in the hole is what I was wonderin' about.

Here's what the engineer tells me. Colox when deposited on the face of the formations drilled through does not penetrate into the sand. That's why Colox drilling fluid won't mud off the sand. It lubricates the hole as it is a non-abrasive fluid. Be safe; pump Colox into your next well. Talk to the Colox field engineer; he'll help you with your mud problems."

colox
COLLOIDAL IRON OXIDE

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GEO. S. MEPHAM & CO., 2001 Lynch Avenue, East St. Louis, Illinois
for Mid-Continent and Gulf Coast areas and

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Under U. S. Patents Nos. 1,575,944-5

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Discoveries and Extensions in West Texas Area Greatly Increased Activity in the Past Year

By L. E. BREDBERG

The West Texas district received more drilling in 1933, both field and wildcat, and twice as much new production as in 1932.

Ward County, the southern areas around Grand Falls and the O'Brien and Hutchings areas in northern Ward, led in field activities and new production. The Big Lake Field, Reagan County, yielded several new Ordovician tests which were big producers, although several others went dead, had to be worked over and some treated with acid to bring them back on production.

Howard and Glasscock Counties were second in the number of producers completed while the Yates Field, Pecos County, again became active after several years producing without any drilling.

Runnels County Resumed Activity

Runnels County, which had lain dormant for about four years, joined the active ranks in 1933 after a well was drilled in the McMillan Pool for a good producer extending production to the northwest. There are now six producers in that field. Agnew & Sons' No. 1 Fowler was the best well drilled in the field so far. It made 672 bbls. of oil at a total depth of 2,537 feet. It extended production to the southwest from the extension area, whereas a former well extended production in this new area a little farther to the east. There are four active tests in the area at the present time and more drilling is to follow with the field probably being defined within the next six months.

In the Addis Pool

There were four producers drilled in the Addis Pool, three in the Cowden area of northern Ector County and Broderick & Calvert of Fort Worth opened another pool during the latter six months of the year. Location of this discovery is 5 miles west of the Addis area which was opened in 1932, and about 5 miles north of the older Penn Pool. It is on the Cowden ranch, Section 25, Block 44, Township 2s, T.&P. Survey. First oil was logged at 4,147 feet. Total depth is 4,338 feet. Gravity is 37.6 degrees, or a little higher than found in other pools in the county. It was shot twice before completing and made better than 200 bbls. per day initial production. Two other tests are now drilling in this area which will probably be developed during 1934 if the industry remains in as good condition as at present. The Cowden, Addis and Broderick and Calvert areas all received outlets by the Humble Pipe Line Co. this year, which was of great importance to the three pools.

A shallow producing area was opened in Irion County when P. A. Johnson of

West Texas

Daily Average and Monthly Production in 1933

Field and County—	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
OGDEN, ANDREWS:													
Daily average	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	275	478	
Month	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8,250	14,818	23,068
CHURCH-FIELDS, CRANE:													
Daily average	5,005	4,938	4,932	4,939	4,967	4,862	4,810	4,821	4,003	3,766	3,349	4,219	
Month	155,155	138,264	152,892	148,170	153,977	145,860	149,110	149,451	120,090	116,746	100,470	130,789	1,660,974
McELROY, CRANE:													
Daily average	8,810	8,962	8,955	8,972	9,006	9,017	8,993	8,907	7,439	6,484	6,228	7,421	
Month	273,110	250,936	277,605	269,160	279,186	270,510	278,783	276,117	223,170	201,004	186,840	230,051	3,016,472
SAND HILLS, CRANE:													
Daily average	28	26	28	30	29	25	11	.....	.....	.....	.....	24	
Month	868	728	868	900	899	750	341	.....	.....	.....	.....	744	6,098
TODD, CROCKETT:													
Daily average	35	81	60	41	27	22	15	16	12	12	.....	.....	
Month	1,085	2,268	1,860	1,230	837	660	465	496	360	372	.....	.....	9,631
WORLD, CROCKETT:													
Daily average	1,018	1,012	982	916	894	911	890	902	740	695	674	667	
Month	31,558	28,336	30,442	27,480	27,714	27,330	27,590	27,962	22,200	21,545	20,220	20,677	313,054
COWDEN, ECTOR:													
Daily average	27	45	69	64	31	25	39	71	349	418	881	847	
Month	837	1,260	2,139	1,920	961	750	1,209	2,201	10,470	12,958	26,430	26,257	87,392
PENN, ECTOR:													
Daily average	4,003	3,971	3,973	3,981	3,968	3,992	3,977	7,397	5,954	5,547	3,366	5,254	
Month	124,093	111,188	123,163	119,430	123,008	119,760	123,287	229,307	178,620	171,957	100,980	162,874	1,687,667
ODESSA, ECTOR:													
Daily average	252	375	311	272	210	216	208	358	496	450	406	554	
Month	7,812	10,500	9,641	8,160	6,510	6,480	6,448	11,098	14,880	13,950	12,180	17,174	124,833
FISHER, FISHER:													
Daily average	639	1,575	3,247	3,161	2,875	2,623	2,823	2,876	3,040	2,954	2,750	2,615	
Month	19,809	44,100	100,657	94,830	89,125	78,690	87,513	89,156	91,200	91,574	82,500	81,065	950,219
BOREN, GARZA:													
Daily average	.....	.....	30	24	26	24	26	25	25	21	20	22	
Month	.....	.....	930	720	806	720	806	775	750	651	600	682	7,440
CHALK-ROBERTS, HOWARD:													
Daily average	14,011	13,986	15,858	15,809	15,911	16,028	19,969	19,567	15,738	15,267	13,844	13,878	
Month	434,341	391,608	491,598	474,270	493,241	480,840	619,039	606,577	472,140	473,277	415,320	430,218	5,782,461
MERTZON, IRION:													
Daily average	20	30	21	14	12	10	10	18	20	19	16	16	
Month	620	840	651	420	372	300	310	558	600	589	480	496	6,236
WHEAT, LOVING:													
Daily average	3,027	3,194	3,267	3,120	3,073	2,786	2,673	2,490	2,028	1,977	1,841	2,240	
Month	93,837	89,432	101,277	93,600	95,263	83,580	82,863	77,190	60,840	61,287	55,230	69,440	963,839
IATAN, MITCHELL:													
Daily average	1,579	1,541	1,522	1,585	1,507	1,419	1,509	1,432	1,194	1,241	1,463	1,461	
Month	48,949	43,148	47,182	47,550	46,717	42,570	46,779	44,392	35,820	38,471	43,890	45,291	530,759
COURTNEY, PECOS:													
Daily average	30	.....	.....	65	30	39	30	24	.....	.....	.....	.....	
Month	930	.....	.....	1,950	930	1,170	930	744	.....	.....	.....	.....	6,654
MASTERSON, PECOS:													
Daily average	.....	.....	.....	10	.....	.....	.....	.....	.....	16	17	249	
Month	.....	.....	.....	300	.....	.....	.....	.....	.....	496	510	7,719	9,025
PECOS VALLEY, PECOS:													
Daily average	295	280	236	220	195	208	226	209	262	187	249	252	
Month	9,145	7,840	7,316	6,600	6,045	6,240	7,006	6,479	7,860	5,797	7,470	7,812	85,610
TAYLOR-LINK, PECOS:													
Daily average	702	672	612	582	508	520	564	607	574	580	561	556	
Month	21,762	18,816	18,972	17,460	15,748	15,600	17,484	18,817	17,220	17,980	16,830	17,236	213,926
YATES, PECOS:													
Daily average	62,424	62,188	61,949	62,577	62,063	62,067	61,732	61,890	49,816	47,577	43,008	42,447	
Month	1,935,144	1,741,264	1,920,419	1,877,310	1,923,953	1,862,010	1,913,692	1,918,590	1,494,480	1,474,887	1,290,240	1,315,857	20,667,846
BIG LAKE, REAGAN:													
Daily average	19,496	18,600	20,894	19,511	19,540	24,014	19,368	20,250	19,588	15,117	14,492	14,525	
Month	604,376	520,800	647,714	585,330	605,740	720,420	598,548	627,750	587,640	468,627	434,760	450,275	6,851,980
HURDLE, UPTON:													
Daily average	3,979	4,075	4,183	4,279	4,132	3,917	4,057	4,433	3,689	3,484	4,254	3,915	
Month	123,349	114,100	129,673	128,370	128,092	117,510	125,767	137,423	110,670	108,004	127,620	121,365	1,471,942
GRAND FALLS, WARD:													
Daily average	2,822	3,047	3,115	3,275	3,417	3,031	3,320	3,682	2,986	2,260	3,168	3,154	
Month	87,482	85,316	96,565	98,250	105,927	90,930	102,920	114,142	89,580	70,060	95,040	97,774	1,133,986
O'BRIEN, WARD:													
Daily average	4,180	4,535	4,464	4,656	4,897	4,758	4,550	4,611	4,271	3,858	2,070	2,112	
Month	129,580	126,980	138,384	139,680	151,807	142,740	141,050	142,941	128,130	119,598	62,100	65,472	1,488,462
SHIPLEY, WARD:													
Daily average	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Month	372	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	372
HENDRICK, WINKLER:													
Daily average	24,535	24,236	23,334	22,569	21,501	21,223	20,556	19,916	16,462	15,813	18,044	18,551	
Month	760,585	678,608	723,354	677,070	666,531	636,690	637,236	617,396	493,860	490,203	541,320	575,081	7,497,934
NORTH WINKLER, WINKLER:													
Daily average	1,845	1,760	1,819	1,848	1,889	2,061	2,326	2,301	1,820	1,656	1,316	1,525	
Month	57,195	49,280	56,389	55,440	58,559	61,830	72,106	71,331	54,600	51,336	39,480	47,275	674,821
Daily average	158,774	159,129	163,861	162,520	160,708	163,798	162,622	166,803	140,506	129,399	122,292	126,982	151,432
Total 1933	4,921,994	4,455,612	5,079,691	4,875,600	4,981,948	4,913,940	5,041,282	5,170,893	4,215,180	4,011,369	3,668,760	3,936,442	55,272,711
Total 1932	5,784,135	4,991,045	5,528,137	5,551,500	5,624,237	5,328,870	5,413,034	5,342,602	5,067,210	4,976,306	4,896,510	5,004,485	63,508,071
Total 1931	6,817,675	6,813,660	7,291,190	7,062,640	6,404,972	6,300,510	6,431,033	6,306,888	6,133,560	6,151,361	5,941,210	5,710,200	77,264,899
Total 1930	10,608,883	9,574,215	10,412,647	9,436,801	9,867,141	9,130,220	9,139,390	8,177,844	7,800,596	8,081,504	8,110,063	7,620,660	107,759,964
Total 1929	11,380,341	9,966,066	11,609,104	10,599,784	10,990,292	10,987,539	12,331,644	11,603,389	10,994,567	11,245,661	10,411,381	10,667,906	132,788,274
Total 1928	8,821,701	9,036,190	10,380,877	11,149,642	9,873,668	8,947,700	10,618,416	10,735,515	10,307,046	10,842,478	9,716,950	10,202,810	120,632,993
Total 1927	2,126,352	1,857,800	2,331,510	2,752,080	3,514,935	3,333,150	3,490,693	4,255,804	5,405,430	6,441,924	6,583,410	7,596,569	49,689,657

Dallas brought in a 160-bbl. well on the Tankersley farm in the H. J. Voelker Survey just north of the town of Mertzon. This is the best well yet opened in Irion County where sweet high gravity oil is found in the wells which produce from around 1,300-1,400 feet. This well topped the pay at 1,368 feet and was completed at 1,371 feet. A test drilled later near this well proved a dry hole while another test proved a small producer. A line was laid from the first well to a small loading rack on the Santa Fe at Mertzon.

Ordovician Tests

Several Ordovician tests were completed in the Big Lake Field, Reagan County, the majority of the wells adding a large volume of oil and gas to new production. However, the majority of the old deep producers went dead or had fallen exceptionally low on production. Some of these were plugged back and treated with acid or shot, while others were drilled a little deeper in an effort to increase their production. Acid treatment on Group No. 1 Oil Corp.'s No. 9-B University, a half mile eastern extension to the deep area, did not prove successful. This test was drilled to a total depth of 8,850 feet, then plugged back to 8,720 feet and treated with 1,000 gallons of acid. It made 9 bbls. of oil per hour and 66 bbls. of water.

A northwest deep extension well has been drilled in by Big Lake Oil Co., and during 1934 the two companies owning acreage in the field will probably define the Ordovician producing area and drill several more deep producers within the area. The No. 9-B University well mentioned above apparently defines the deep area on the east.

There are only two Ordovician wildcat tests drilling in the basin at the present time. These are: Humble Oil & Refining Co.'s No. 1 White and Baker in Section 44, Block Z, T.C.R.R. Survey, 9 miles west of the Yates Field, Pecos County. It is down 7,240 feet. Gulf Production Co.'s No. 103 McElroy in Section 197, Block F, Upton County, is the other deep wildcat in the district. It is down 8,650 feet. Both are intresting tests and should be completed the fore part of the year.

8,042-Foot Wildcat

Stanolind Oil & Gas Co. and others' No. 1 Todd in Section 67, Block UV, G.C.&S.F. Survey, Crockett County, was one of the most interesting wildcats drilled in the basin in 1933. It went to 8,042 feet in quest of production from the Ordovician lime but failed to "pay off" and was abandoned. However, the Continental Oil Co. owned a nearby block and drilled several shallow tests, the first one coming in as a small producer to hold the block. After that well was completed the Stanolind Oil & Gas Co. drilled a shallow test on their block. This test proved a producer, thereby validating its block also. Whether or not the company will drill another deep test on the block is doubtful. The former test hardly made sufficient showings to warrant the sinking of another such expensive hole.

Mintex Oil Co.'s No. 1 Waring made a small well in April, 1933, when it was given a 20-quart shot from 2,560-83 feet. This well is in Section 2,120, A. T. Robinson Survey. A No. 2 test was drilled nearby, but this test has been standing shut down for the past few months. The area is one that cannot be classed as very interesting. But little attention was given to the small producer.

New Pool in Jones County

Condor Petroleum Co.'s No. 1 Sayles, which opened a high gravity shallow pool near Hawley in Jones County, was deepened from 1,919 to 1,923½ feet and increased its production from 284 to 525 bbls. A second producer was drilled in this area, but other activity in the pool has been stifled thus far. Other drilling may be carried on in the pool during the year of 1934.

Oil in Reeves County

Freels and others' No. 1 J. B. Greenman Ranch in Section 21, Block 2, H.&G.N. Survey, is standing with 600 feet of fluid in the hole, 40 of which is water. Whether or not this wildcat, west of the Loving County Pool, but in Reeves County, proves a producer remains to be seen. It had a showing of oil and gas at 2,230-35 feet, another at 2,250-56 feet and a third at 3,950 feet. It topped the Delaware horizon at minus 1,134 feet with an elevation of 2,721 feet. It will probably be plugged back from total depth of 3,985 feet to shut off the water, and possibly given a shot. If this test makes a producer it will be the first commercial producer in the county. Other tests in the county have had good oil and gas showings, but so far none of them has come through as a producer.

Acid Treatment

Acid treatment of wells made its debut in the Permian Basin during the year. It proved successful in some areas, but in other areas where dolomite was mixed with the lime and the lime was extremely hard or sandy the acid proved unsuccessful. However, in some pools heating the acid proves beneficial, whereas the cold acid had no effect on the lime, principally in the Howard-Glasscock County areas. Many more wells are expected to be treated with acid in the district during 1934 if the price of oil holds up so as to make such treatment worth while. As mentioned above several of the Ordovician wells were also treated with acid in the Big Lake Field to bring them back on production or increase their production. Two acid treating companies now have offices in the district, prepared to handle a rush of this work when and if it comes.

There were 298 tests completed in the district during 1934, of which 234 were oil producers, 58 were dry holes and 3 were gas wells. Tabulation by months and counties will be found in the accompanying report.

WEST TEXAS

Summary of Completion by Counties

County—	Comp.	Prod.	Dry	Gas
Crane	1	922	0	0
Crockett	7	260	6	0
Comanche	1	.....	1	0
Concho	3	.....	3	0
Culberson	1	.....	1	0
Ector	14	2,477	3	0
Fisher	10	5,818	1	0
Garza	3	19	1	0
Glasscock	17	5,394	1	0
Howard	40	6,299	3	0
Irion	7	230	4	0
Jones	8	746	4	0
Loving	6	880	1	0
Pecos	37	16,362	7	0
Reagan	10	7,657	2	0
Reeves	3	.....	3	0
Runnels	1	.....	1	0
Tom Green	1	.....	1	0
Taylor	1	50	0	0
Upton	4	719	0	0
Val Verde	1	.....	1	0
Ward	104	17,157	12	3
Winkler	18	2,102	2	0
Total 1933	298	67,091	58	3

Summary of Completions in 1933

Month—	Comp.	Prod.	Abd.	Gas
January	24	6,123	1	0
February	24	5,968	6	0
March	18	1,116	5	0
April	34	6,891	9	0
May	11	768	3	0
June	16	3,217	5	0
July	33	5,658	8	1
August	23	3,748	6	1
September	27	5,407	3	1
October	34	9,496	5	0
November	36	10,981	5	0
December	18	7,718	2	0
Total 1933	298	67,091	58	3
Total 1932	223	34,298	67	4
Difference	75	32,793	9	1

DRILLING CANADIAN FOOTHILLS

A number of isolated areas in the foothills were tested in 1933, but no completions reported. The most active were Graystone Consolidated's No. 2 Signal Hill, LSD 9, Section 34-23-5w5, and Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, both on the Moose Mountain structure; Hunter Valley Oil Co.'s No. 1 McLaren, Township 31-10w5, on a structure west of Olds; and Oil City Royalties' No. 1, Section 30-1-30w4, in the old Oil City Field in Waterton Lakes Park. Ranchmen's Gas & Oil Co. continued intermittent drilling on the Aldersyde structure east of Turner Valley; and toward the end of the year several new tests were located in other areas of the southern foothills.

East Texas Production Passes Previous Records

(Continued from Page 72)

tiffs from overproducing their properties pending final decision of the Amazon Petroleum Corp. and others' attack on the commission.

The Federal Government sent investigators into the field in July to better ascertain conditions. This force has been augmented from time to time in order to cover the field and local refineries more thoroughly and gain all information possible before any suits are instituted before a Federal grand jury for production or interstate shipments of illegally produced oil or refined products manufactured from such oil.

Many Skimmers Shut Down

After the Federal Government started making investigations and soon after the Federal order was issued to prevent interstate shipments of hot oil or refined products, almost half of the 56 refineries in the field shut down.

Twenty-seven refineries were erected in the field during the year, making a total of 56. There are 10 gasoline plants in the field, and another proposed. Discussion of another plant has also been reported. The Excelsior Natural Gasoline Corp.'s plant near London is being increased to double its capacity and the Humble Oil & Refining Co. is laying additional gas gathering lines to connect with its two plants, one near Kilgore and the other near London.

The increase in price of oil in the field, curtailment of production, construction of gasoline plants which are taking much of the gas in the field, and completion among the major oil purchasers, have caused the values of properties to increase considerably during the last four months of the year. Prior to that time operators had difficulty in disposing of producing properties, but since, majors as well as smaller companies have been seeking and purchasing producing properties, paying as high as $40,000 and $50,000 per well. Conditions have just been reversed in regard to selling and purchasing producing properties. Several fair size deals were made during the last two months, but the majority of operators, having weathered the storm when oil was selling for 10 cents per barrel, are now holding their properties expecting them to pay off before they are depleted.

No Pipe Line Construction

There was no pipe line construction of consequence in the field during the year, all major lines having laid trunk and gathering systems in the previous two years. However, the Stanolind Crude Oil Purchasing Co. became aggressive for more connections, and the Stanolind Pipe Line Co.'s main line from Mexia to Houston has been looped to handle more oil from East Texas. The Humble Pipe Line Co. delivers crude from East Texas to Mexia for Stanolind, the latter having purchased ten 55,000-bbl. tanks at Mexia. All of this construction work and the storage purchase and pipe line connections were made to prepare for a greater future supply for the Pan American Refining Co.'s large plant under construction at Houston. The Pan American will also operate the Stanolind Pipe Line Co.'s looped line from Mexia under lease. This refinery will add greatly to the demand for East Texas oil.

Purchases of Stored Oil

During the latter part of November the Humble Oil & Refining Co. announced that it would purchase 360,000 bbls. of oil it held in storage for various producers. This oil was run to storage between September 12, 1932, and May 13, 1933. The company was to have charged 10 cents per barrel gathering charges and 2 cents per barrel per month for storage, but when the latter announcement was made it stated that the gathering charge would be absorbed by the Humble and 2 cents per barrel would be charged for the first month and 1 cent per barrel each succeeding month. Posted price was to be paid by the purchaser.

One company offered to purchase a vast amount of back allowable oil and many applications to run back allowable were filed with the Railroad Commission but that body withdrew its former order allowing the production of such oil, thereby preventing a bad situation from arising due to many operators and companies filing applications for permission to produce several million barrels of such oil.

Legal Decisions

Judge Randolph Bryant ruled November 8 that the Railroad Commission was without authority in trying to enforce its orders pertaining to reclaimed oil and oil from slush pits or tank bottoms. There are 13 such plants in the field handling around 800 to 1,000 bbls. per day of such oil, the majority of which finds its way into several local refineries from the reclaiming plants.

Major companies made heavy withdrawals from storage in the field in the last five months of the year. Much of this oil is supposed to have been moved to tanks on the Gulf Coast and Eastern Seaboard with some of it going to foreign ports, and but little going to refineries under the oil code.

A suit was brought by the Jenkins Oil Corp. of Dallas during the middle of the year, to obtain an increase in the allowable of their pumping wells which have a marginal limit of 20 bbls. The case was lost by the plaintiffs.

On September 1, 1933, a state statute went into effect making it a felony to produce oil in violation of the commission's orders, or to use a by-pass in the production of oil. Conviction is punishable by fines ranging from $500 to $5,000, and a sentence of two to four years in the penitentiary in case of a second offense. Many fines have been collected by the attorney general's department under this new statute, but so far only one person has been sentenced to jail, and then for only 30 days.

The Womack Oil Co. and Marr Drilling Co. asked for two separate hearings during the year, to have approximately 5,000 acres on the extreme south end of the field, southern Rusk County, as a separate and distinct field. Both companies presented reasons for such a separation, but other companies offered testimony that there should not be such a subdivision of the field, that the gas and oil producing area in the extreme south was connected to the main body of the field. The commission has never announced its decision on these hearings, consequently this part of the field is prorated in conjunction with the entire field instead of separately as requested in the applications.

EAST CENTRAL AND EAST TEXAS

Completions by Counties

County—	Comp.	Prod.	Dry	Gas
Anderson	3	72	2	0
Angelina	5	0	5	0
Bowie	4	0	4	0
Cherokee	8	0	8	0
Ellis	3	0	3	0
Fannin	1	0	1	0
Franklin	3	0	3	0
Freestone	3	0	3	0
Gregg	1,216	81,102	7	0
Henderson	12	0	12	0
Hill	3	0	3	0
Hopkins	11	0	11	0
Hunt	2	0	2	0
Kaufman	1	0	1	0
Lamar	1	0	1	0
Leon	4	0	4	0
Limestone	3	0	3	0
Morris	2	0	2	0
Navarro	1	0	1	0
Rusk	966	60,289	22	4
Red River	1	0	1	0
Smith	111	6,497	5	0
Titus	2	0	2	0
Upshur	166	9,190	14	0
Van Zandt	35	1,898	16	0
Wood	5	0	5	0
Total	2,572	159,046	141	4

Operations for the Year 1933

Month—	Comp.	Prod.	Dry	Gas
January	270	14,650	17	0
February	171	9,509	10	1
March	137	8,125	9	0
April	104	7,217	9	0
May	125	7,891	22	0
June	106	6,607	16	0
July	159	10,158	16	1
August	200	12,859	6	0
September	343	21,296	7	0
October	317	20,801	10	1
November	329	21,041	9	1
December	311	18,892	10	0
Total for 1933	2,572	159,046	141	4
Total for 1932	5,904	397,372	193	9
Difference	3,332	238,326	52	5

Strike in Foard County Feature in North Texas; Drilling Increased in the Panhandle Fields

By L. E. BREDBERG

The greatest strike in 1933 in the North Central Texas district was the Texas Co.'s No. 3 Les K. Johnson, in Section 36, Block L, on an 8,700-acre block near the western line in Foard County. This test, drilled in an area which had formerly been tested by several dry holes or small gassers, came in making 581 bbls., then increased to 750 bbls. per day from pay topped at 3,556 feet, and what is named as the Canyon lime. The well was drilled to a total depth of 3,577 feet before being completed, and was rated good for around 3,500 bbls. per day after deepening. Gravity of the first oil ran 42 degrees, it increased to 45 degrees and then to 49 degrees when the hole was drilled to its present total depth from 3,571 feet.

Gas pressure is heavy in the well and it produced 3,500,000 feet per day through choke when the well was completed. There were five separate gas horizons logged, all of which were drilled through in quest of oil which was finally struck. Elevation is 1,525 feet.

No other tests have been drilled in the area since the discovery was made but the company is building a 10,000,000-foot natural gas plant to process the gas from the well; is erecting a camp and water supply system on the block, and is laying a gasoline line from the well to a loading rack on the Southern Pacific Railroad at Crowell, 16 miles east of the well. A short line was laid from the well to connect with the Magnolia Pipe Line Co.'s main line which runs just west of the well from the Panhandle to the Gulf Coast.

The Continental Oil Co. and others extended the Bulcher Pool, Montague County, 4 miles to the northwest when their No. 1 S. J. Holt in the Ed O'Connor Survey, Abstract No. 588, came in with an initial production of 163 bbls. from sand topped at 1,575-85 feet and 1,611-16 feet, the latter being the total depth. Benton & Holmes' No. 1 Mrs. C. L. Davenport, in Block 27, J. Fitch Survey, northeast Montague County, was a 3-mile extension well. It topped the sand at 1,477-81 feet and 1,517-32 feet, making 100 bbls. the first 24 hours, but falling off to 50 bbls. thereafter. C. W. Boller and others opened up more production in southwest Archer County during the year when their No. 1 Farmer, in the Farmer ranch area, Section 27, Bell County School Lands, made 100 bbls. after it was treated with 1,000 gallons of acid. The discovery topped the lime at 1,414 feet and the sandy lime at 1,415-28 feet. Bottom of the hole is 1,428 feet.

Acid Treatment Efficacious

Acid treatment of wells was started in the Ranger and North Central Texas district in 1932, but several hundred wells were treated in 1933, the majority of the treatments proving successful. In several instances treatment with acid made producers out of tests which looked as if they were dry holes, some of them having but the slightest showing of oil before treating. Such acid treatment has prevented the selling or abandoning of many leases on which lime producers had gone dry or decreased in production to such a point that producing them was costly to the owners. Major companies and independents are using acid to bring back old wells on production or make producers or better producers out of new wells, and during 1934 more acid will be used in the two districts if the price of oil retains or increases its present level. The Anarene area of southern Archer County has been the most active area in the two districts during the year, with many of the wells in this area being successfully treated with acid, the Gunsight and Canyon lime reacts favorably to acid treatment. There were 222 producers brought in in Archer County during 1933, many of which were in the Anarene area. Wells in Young and other counties have also responded to acid treatment and whereas treatment may have only been tried in several areas during the year, in 1934 it will be carried on more aggressively. Oil scouts are now carrying acid-treated wells on their weekly scouting reports along with locations, completions and drilling report, since the work has become so important.

NORTH CENTRAL TEXAS

Completions by Counties

County—	Comp.	Prod.	Dry	Gas
Archer	346	22,986	124	0
Baylor	4	0	4	0
Brown	54	3,618	33	0
Callahan	51	32	39	9
Clay	29	299	20	0
Coleman	24	230	13	1
Comanche	1	0	1	0
Cooke	7	60	5	0
Denton	3	0	3	0
Eastland	17	262	10	1
Erath	3	0	1	2
Foard	1	750	0	0
Grayson	4	0	4	0
Jack	54	437	39	2
Montague	13	298	7	1
Palo Pinto	37	70	23	10
Parker	3	0	3	0
Shackelford	88	1,904	40	2
Stephens	8	0	6	2
Throckmorton	17	108	13	1
Taylor	1	0	1	0
Wichita	73	1,069	42	0
Wilbarger	38	1,267	20	0
Wise	2	0	2	0
Young	285	10,794	155	0
Total	1,163	44,184	608	31

Summary of Completions in 1933

Month—	Comp.	Prod.	Dry	Gas
January	96	1,177	53	5
February	78	959	54	3
March	78	572	54	5
April	91	4,354	61	2
May	78	786	52	4
June	44	2,533	25	0
July	78	2,004	46	1
August	81	2,330	45	5
September	132	5,883	53	2
October	162	8,811	60	2
November	127	8,401	47	1
December	118	6,374	58	1
Total 1933	1,163	44,184	608	31
Total 1932	1,214	29,661	670	52
Difference	51	14,523	62	21

The Ranger district has a daily allowable of 26,500 bbls. from 7,765 wells and the Wichita Falls or North Central Texas district has a daily allowable of 56,500 bbls., from 14,939 wells. Many wells were abandoned during the year, the majority of them during the fore part, but if they were capable of making a worthwhile amount of crude they were reworked during the latter part of the year and brought back on production. The increase in the price of the crude and the increased demand was responsible for this reconditioning.

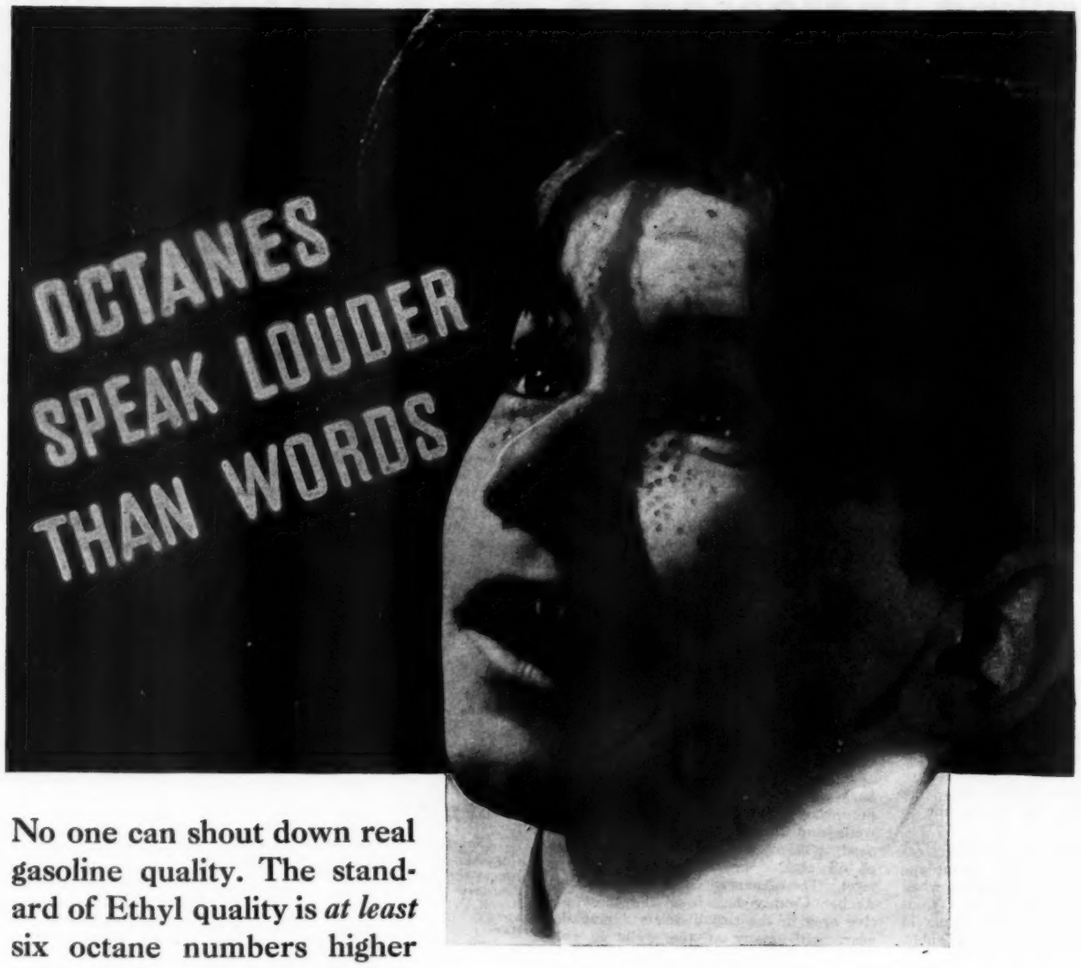
There were 51 fewer completions recorded in the Ranger and Wichita Falls (Central and North Central Texas) districts during the past year than in 1932, but there were 62 more dry holes in 1932 than in 1933, giving a greater number of producers completed last year than in 1932. Curtailing wildcatting and drilling in the proven areas was responsible for cutting down the number of abandoned tests.

During the fore part of the year both districts were curtailed materially, both in drilling and production, mainly due to a lessened demand for oil from these districts and the low price paid for the crude. However, during the middle of the year a great change took place, the price of oil was advanced and pipe line companies and refineries started making a bid for all the allowable oil from the two districts. Companies which had lines shut down in the district again started

North Texas

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
WICHITA COUNTY:													
Burkburnett—													
Daily average	3,118	2,914	2,877	3,013	2,825	2,806	2,354	2,597	2,736	3,000	3,120	3,111	
Month	96,658	81,592	89,187	90,390	87,575	84,180	72,974	80,507	82,080	93,000	93,600	96,441	1,048,184
Electra—													
Daily average	7,864	7,813	7,721	7,699	7,501	7,482	7,426	7,271	7,247	7,737	7,553	7,570	
Month	243,784	218,764	239,351	230,970	232,531	224,460	230,206	225,401	217,410	239,847	226,590	243,970	2,773,284
Iowa Park, K.M.A.—													
Daily average	2,549	2,593	2,562	2,583	2,442	2,393	2,381	2,329	2,333	2,329	2,282	2,306	
Month	79,019	72,604	79,422	77,490	75,702	71,790	73,811	72,199	69,990	72,199	68,460	71,486	884,172
Sunshine Hill—													
Daily average	522	516	505	503	497	483	449	419	425	494	496	488	
Month	16,182	14,448	15,655	15,090	15,407	14,490	13,919	12,989	12,750	15,314	14,880	15,128	176,252
Wichita County Miscellaneous—													
Daily average	2,472	2,584	2,572	2,566	2,492	2,416	2,464	2,455	2,373	2,556	2,511	2,520	
Month	76,632	72,352	79,732	76,980	77,252	72,480	76,384	76,105	71,190	79,236	75,330	78,120	911,793
ARCHER COUNTY:													
Daily average	11,203	11,294	11,273	11,519	11,371	10,644	11,459	12,360	13,865	14,861	14,544	14,910	
Month	347,293	316,232	349,463	345,570	352,501	319,320	355,229	383,160	415,950	460,691	436,320	462,210	4,543,939
CLAY COUNTY:													
Daily average	462	521	507	489	495	477	427	413	397	400	447	426	
Month	14,322	14,588	15,717	14,670	15,345	14,310	13,237	12,803	11,910	12,400	13,410	13,206	165,918
WILBARGER COUNTY:													
Daily average	7,987	8,039	7,994	8,203	7,689	6,890	7,066	7,408	7,729	8,524	8,647	8,512	
Month	247,597	225,092	247,814	246,090	238,359	206,700	219,046	229,648	231,870	264,244	259,410	263,872	2,879,742
MONTAGUE COUNTY:													
Daily average	3,977	3,986	3,999	4,181	4,170	3,916	4,087	4,118	4,246	4,330	4,273	4,218	
Month	123,287	111,608	123,969	125,430	129,270	117,480	126,697	127,658	127,380	134,230	128,190	130,758	1,505,957
YOUNG COUNTY:													
Daily average	8,482	8,595	8,518	8,507	7,574	7,410	7,164	8,134	8,321	9,118	9,217	9,194	
Month	262,942	240,660	264,058	255,210	234,794	222,300	222,084	252,154	249,630	282,658	276,510	285,014	3,048,014
BAYLOR COUNTY:													
Daily average	390	382	372	352	340	341	321	304	282	221	235	227	
Month	12,090	10,696	11,532	10,560	10,540	10,230	9,951	9,424	8,460	6,851	7,050	7,037	114,421
COOKE COUNTY:													
Daily average	1,522	1,563	1,550	1,597	1,572	1,483	1,552	1,435	1,592	1,525	1,608	1,588	
Month	47,182	43,764	48,050	47,910	48,732	44,490	48,112	44,485	47,760	47,275	48,240	49,228	565,228
FOARD COUNTY:													
Daily average	55	65	70	66	65	62	66	70	69	565	565	549	
Month	1,705	1,820	2,170	1,980	2,015	1,860	2,046	2,170	2,070	17,515	16,950	17,019	69,320
Daily average	50,603	50,865	50,520	51,278	49,023	46,803	47,216	49,313	51,615	55,660	55,498	55,919	51,195
Total 1933	1,568,693	1,424,220	1,566,120	1,538,340	1,520,023	1,404,090	1,463,696	1,528,703	1,548,450	1,725,460	1,664,940	1,733,489	18,686,224
Total 1932	1,587,262	1,557,764	1,624,803	1,573,380	1,654,625	1,620,540	1,667,304	1,646,100	1,584,420	1,597,957	1,530,150	1,572,103	19,216,408
Total 1931	1,997,361	1,680,504	1,876,306	1,790,400	1,809,873	1,771,680	1,785,011	1,758,816	1,896,360	1,900,455	1,784,190	1,799,922	21,850,878
Total 1930	2,768,393	2,562,792	2,860,587	3,053,580	3,153,351	3,043,020	2,881,450	2,759,217	2,430,390	2,367,904	2,226,210	2,191,204	33,299,098
Total 1929	2,794,619	2,412,788	2,760,705	2,729,250	2,793,286	2,759,550	3,103,990	3,128,458	2,967,270	3,015,556	2,832,930	2,958,320	34,261,732
Total 1928	2,441,002	2,247,790	2,483,100	2,465,970	2,600,559	2,687,207	2,977,993	3,151,181	2,915,790	2,987,594	2,794,890	2,957,989	32,711,065
Total 1927	2,884,736	2,621,220	2,996,367	2,885,220	3,202,703	3,064,920	3,043,332	2,993,236	2,882,790	2,708,780	2,641,140	2,680,632	34,605,076



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operating these lines, giving outlets to some pools which had had difficulty in disposing of their oil during the shut down. More gathering lines were laid in the districts, and lines were laid connecting to new pools brought in during the year. These lines helped to handle the 44,184 bbls. of new initial production and succeeding production from the new pools brought in and new wells completed in older pools. This new production ran 14,523 bbls. higher than during the preceding year.

Several refineries were erected in the two districts during the year, and other refineries were reconditioned or enlarged to process more oil, many of these plants being located in the vicinity of newly completed fields, the majority of them being erected when pipe lines refused to connect with the pools or took but a small portion of the allowable during the fore part of the year.

Texas Panhandle

Drilling in the Panhandle district increased a little over 1932, there being 34 more tests completed in the district in 1933 than in 1932. However, the initial production of the new wells totaled more in 1932 than in the latter year.

There were no extensions of great importance in any of the Panhandle fields during 1933, but the north part of the old Badger Pool in Hutchinson County and the southeastern extension to the Morse Pool, eastern Gray County, saw considerable drilling and several good producers during the latter part of the year. The pay horizons in the district are sandy lime and granite wash. Acid has been tried out in some of the wells in the district, and carbide has also been used to melt the paraffin in the wells thereby opening up the lime pores to allow for increased production in the wells. This is an old method of treating oil wells in order to increase production but was just brought into use in this district during the last six months. Quite a number of wells were abandoned during the year when drilling deeper or reworking failed to bring them back on production. Most of this work was in the old producing areas of Gray and Hutchinson Counties. There were 63 wells deepened in the district.

TEXAS PANHANDLE
Completions by Counties

County—	Comp.	Prod.	Dry	Gas
Carson	16	2,080	2	6
Childress	1	0	1	0
Cottle	1	0	1	0
Collingsworth	2	0	2	0
Gray	128	32,344	7	8
Hutchinson	26	5,683	1	3
Moore	2	0	0	2
Oldham	1	0	1	0
Wheeler	14	846	0	5
Total	191	40,953	15	24

Summary of Completions in 1933

Month—	Comp.	Prod.	Dry	Gas
January	15	2,070	2	2
February	12	1,939	3	1
March	14	2,049	1	2
April	19	2,527	2	2
May	17	1,907	1	5
June	10	4,914	0	3
July	14	2,255	2	0
August	15	2,560	0	2
September	14	2,597	0	1
October	21	6,861	1	1
November	17	4,012	2	1
December	23	7,262	1	5
Total 1933	191	40,953	15	24
Total 1932	159	48,152	22	27
Difference	34	7,199	7	3

55 Gasoline Plants

Two natural gasoline plants are now under construction in the district, but it is believed that such construction is about at an end in the field there being sufficient plants to handle the excess gas not taken by gas pipe lines.

Several independent operators who could not find a market for their gas obtained permission from the Railroad Commission to erect plants to strip gas from their wells thereby realizing something from their leases and wells which had previously been shut in for want of connections by gas purchasers.

During the year the Magnolia Petroleum Co. erected a plant at Pampa; Shamrock Oil & Gas Co., one at Dumas; Bell Oil & Gas Co., one in Carson County, and the Cargray Corp., one at Pampa. The latter corporation was formed by Hagy, Harrington and Marsh, independent operators of Amarillo. Several other plants in the district were reconditioned or enlarged during the year. There is a total of 55 such plants in the district.

ONTARIO OPERATIONS

There was considerable drilling in Ontario in 1933. In old Tilbury Field, Glenwood Syndicate (Salina Oil & Gas Co.) put down five wells in Concession 13, Tilbury East Township; four were gassers from 35,000 to 350,000 feet, the fifth a dry hole. Southern Ontario Gas Co.'s test, in Lot 3, Concession 12, Raleigh, looks like a commercial oil well. Olga Oil & Gas Co. continued operations in Concession 8 and 9, Raleigh. Several wildcat tests were drilled in eastern Kent County.

In Lambton County, Ontario, Union Gas Co. continued work in the Dawn gas field. Besides deepening three old wells, with increased gas production in one, six new wells were completed.

A development in December was a strike of shallow crude in Concession 12, Brooke Township, by Leo A. Wilson Syndicate of Windsor. A second test also got production, and a shallow field may develop.

In the Haldimand-Norfolk-Brant area there has been a lot of shallow drilling for gas.

Texas Panhandle

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
CARSON COUNTY:													
Daily average	4,887	4,546	4,806	4,054	4,058	4,063	5,306	5,846	5,180	5,319	4,857	5,011	
Month	151,497	127,288	148,986	121,620	125,798	121,890	164,486	181,226	155,400	164,889	145,710	155,341	1,764,131
HUTCHINSON COUNTY:													
Daily average	10,687	10,914	11,158	11,234	10,373	10,116	10,963	11,198	10,798	11,123	10,595	11,212	
Month	331,297	305,592	345,898	337,020	321,563	303,480	339,853	347,138	323,940	344,813	317,850	347,572	3,966,016
WHEELER COUNTY:													
Daily average	307	244	314	275	318	297	453	452	430	564	516	519	
Month	9,517	6,832	9,734	11,250	9,858	8,910	14,043	14,012	12,900	17,484	15,480	16,089	146,109
GRAY COUNTY:													
Daily average	27,549	26,962	31,561	29,975	29,063	27,989	32,674	31,926	27,655	27,965	22,666	25,175	
Month	854,019	754,936	978,391	899,250	900,953	839,670	1,012,894	989,706	829,650	866,915	679,980	780,425	10,386,789
MOORE COUNTY:													
Daily average	906	1,165	1,041	877	872	835	853	874	812	1,002	1,010	963	
Month	28,086	32,620	32,271	26,310	27,032	25,050	26,443	27,094	24,360	31,062	30,300	29,853	340,481
Daily average	44,336	43,831	48,880	46,515	44,684	43,300	50,249	50,296	44,875	45,973	39,644	42,880	45,478
Total 1933	1,374,416	1,227,268	1,515,280	1,395,450	1,385,204	1,299,000	1,557,719	1,559,176	1,346,250	1,425,163	1,189,320	1,329,280	16,603,526
Total 1932	1,537,104	1,392,464	1,461,526	1,523,850	1,605,397	1,603,740	1,688,012	1,665,940	1,436,760	1,424,667	1,356,360	1,463,240	18,154,060
Total 1931	1,754,042	1,499,736	1,593,152	1,622,220	1,858,202	1,764,960	1,755,003	1,813,965	1,926,750	2,015,186	1,657,680	1,599,352	20,860,248
Total 1930	2,655,398	2,467,080	2,750,971	2,835,960	3,297,315	3,156,941	3,024,422	3,015,277	2,388,000	2,523,617	2,190,900	2,186,151	32,492,032
Total 1929	1,882,878	1,582,196	1,845,213	1,834,980	2,086,579	2,623,680	2,918,278	4,985,608	3,548,100	4,242,538	2,962,110	3,230,634	31,742,794
Total 1928	2,408,359	2,287,607	2,253,173	2,044,020	2,115,409	1,965,484	1,973,595	1,960,316	1,897,110	2,061,376	1,885,710	1,884,335	24,736,494
Total 1927	4,004,053	3,528,280	3,654,590	3,749,610	4,174,181	3,814,380	3,459,910	3,071,790	2,882,640	2,735,719	2,488,530	2,526,097	40,089,780
Total 1926	157,077	152,264	245,024	393,860	876,897	1,430,400	2,023,742	2,973,848	3,421,890	4,534,339	4,595,200	4,741,326	25,545,887

Central Texas

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
BROWN COUNTY:													
Daily average	2,510	2,567	2,570	2,454	2,534	2,315	2,104	2,076	2,134	2,426	2,489	2,407	
Month	77,810	71,876	79,670	73,620	78,554	69,450	65,224	64,356	64,020	75,516	74,670	74,617	869,383
CALLAHAN COUNTY:													
Daily average	2,154	2,164	2,112	2,062	1,965	1,937	1,660	1,619	1,574	1,720	1,716	1,664	
Month	66,774	60,592	65,472	61,860	60,915	58,110	51,460	50,189	47,220	53,320	51,480	51,584	678,976
COLEMAN COUNTY:													
Daily average	2,207	2,231	2,158	1,997	1,779	1,742	1,552	1,515	1,518	1,547	1,550	1,592	
Month	68,417	62,468	66,898	59,910	55,149	52,260	48,112	46,965	45,540	47,957	46,500	49,352	649,528
COMANCHE COUNTY:													
Daily average	985	967	900	875	898	864	906	880	871	804	845	806	
Month	30,535	27,076	27,900	26,250	27,838	25,920	28,086	27,280	26,130	24,924	25,350	24,986	322,275
EASTLAND COUNTY:													
Daily average	2,643	2,636	2,599	2,560	2,307	2,276	2,441	2,417	2,390	2,492	2,590	2,619	
Month	81,933	73,808	80,569	76,800	71,517	68,280	75,671	74,927	71,700	77,252	77,700	81,189	911,346
JACK COUNTY:													
Daily average	1,399	1,378	1,343	1,372	1,312	1,284	1,199	1,355	1,291	1,503	1,477	1,407	
Month	43,369	38,584	41,633	41,160	40,672	38,520	37,169	42,005	38,730	46,593	44,310	43,617	496,362
JONES COUNTY:													
Daily average	1,423	1,482	1,550	1,517	1,580	1,494	1,715	1,898	1,951	1,989	2,125	2,030	
Month	44,113	41,496	48,050	45,510	48,980	44,820	53,165	58,838	58,530	61,659	63,750	62,930	631,841
PALO PINTO COUNTY:													
Daily average	409	441	435	400	362	354	349	345	342	359	327	330	
Month	12,679	12,348	13,485	12,000	11,222	10,620	10,819	10,695	10,260	11,129	9,810	10,230	135,297
RUNNELS COUNTY:													
Daily average	63	55	40	37	49	41	66	125	450	475	413	427	
Month	1,953	1,540	1,240	1,110	1,519	1,230	2,046	3,875	13,500	14,725	12,390	13,237	68,365
SHACKELFORD COUNTY:													
Daily average	3,394	3,425	3,364	3,265	3,177	2,816	2,875	3,015	3,020	3,170	3,325	3,290	
Month	105,214	95,900	104,284	97,950	98,487	84,480	89,125	93,465	90,600	98,270	99,750	101,990	1,159,515
STEPHENS COUNTY:													
Daily average	4,345	4,521	4,806	5,018	5,218	4,610	5,214	5,160	5,165	5,289	5,259	5,273	
Month	134,695	126,868	148,986	150,540	161,758	138,300	161,634	159,960	154,950	163,959	157,770	163,463	1,922,883
THROCKMORTON COUNTY:													
Daily average	506	546	550	533	540	529	508	556	648	820	876	854	
Month	15,686	15,288	17,050	15,990	16,740	15,870	15,748	17,236	19,440	25,420	26,280	26,474	227,222
HASKELL COUNTY:													
Daily average	33	31	31	25	30	27	29	25	29	27	25	25	
Month	1,023	868	961	750	930	810	899	775	870	837	750	775	10,248
TAYLOR COUNTY:													
Daily average	118	91	80	51	69	56	16	.....	.....	24	150	65	
Month	3,658	2,548	2,480	1,530	2,139	1,680	465	.....	.....	744	4,500	2,015	21,759
Daily average	22,189	22,545	22,538	22,166	21,820	20,345	20,633	20,986	21,383	22,655	23,167	22,789	21,921
Total 1933	687,859	631,260	698,678	664,980	676,420	610,350	639,523	650,566	641,490	702,305	695,010	706,459	8,005,000
Total 1932	644,118	626,458	666,128	647,130	680,481	661,440	688,603	696,198	635,850	683,023	673,260	695,578	7,998,267
Total 1931	653,356	628,516	669,600	693,960	741,768	716,370	654,596	638,848	662,400	663,555	640,380	660,455	8,023,804
Total 1930	1,336,689	1,197,784	1,253,702	1,220,510	1,218,176	1,172,640	1,104,220	1,102,980	1,014,210	952,010	885,210	890,072	13,348,203
Total 1929	1,574,422	1,368,304	1,515,240	1,451,880	1,539,057	1,471,350	1,517,636	1,522,762	1,532,730	1,542,932	1,449,300	1,484,776	17,970,419
Total 1928	1,462,754	1,381,096	1,465,029	1,422,150	1,477,119	1,473,111	1,520,247	1,502,756	1,582,050	1,447,832	1,463,700	1,568,259	17,736,103
Total 1927	1,949,063	1,903,412	2,215,702	2,109,300	2,192,251	1,967,640	1,705,558	1,597,523	1,519,230	1,548,698	1,464,750	1,403,029	21,696,256

Eighteen Pools Discovered in Southwest Texas; Only Four Developed During Past Year

By B. D. STEVENSON
Staff Correspondent, Southwest Texas Fields

Duval County easily maintained preeminence in the activity in Southwest Texas during 1933 both in drilling, proven and wildcat, and in volume of initial production. Nearly a third of the completions in Southwest Texas were in Duval County and almost entirely in the north half of the county, and of the total of 161,853 bbls. initial production for the whole of Southwest Texas 115,875 bbls. was from northern Duval County.

Of 18 discovery wells for the year 6 were in northern Duval County in the Government Wells trend. Of the 18 new pools only 4 got under real headway toward development and 2 of these were in northern Duval County, the Stewart or Northwest Extension Pool and the Eagle Hill Pool. The total of wells drilled in northern Duval County compared with the total in all Southwest Texas, about 33⅓ per cent, or one to two.

Northern Duval County also got a big percentage of the discussion among geologists and brought out the Cooper theory of shore lines as an important factor responsible for accumulation of oil. The wildcatting following the Government Wells trend extended several miles north into McMullen County and was responsible for drilling of 18 wildcat tests in southern McMullen County located with the idea of finding more pools in the Government Wells sand.

Classed in the Government Wells "play" were 20 wildcat dry holes drilled in northern Duval County, and 18 in southern McMullen County. Another feature is that this is the second year northern Duval County has had the bulk of the activity and at the close of 1933 it looked like the activity would extend far into 1934.

General Increase Is Shown

With the exception of 1929 and 1930, there were more producers completed in Southwest Texas, with higher initial rate of production the past year than any in the past seven years. The record follows:

Year—	Comp.	Prod.	Dry	Gas
1933	951	161,853	525	52
1932	900	121,836	471	49
1931	624	65,114	380	51
1930	1,193	430,393	512	95
1929	1,136	187,144	472	143
1928	742	43,878	311	200
1927	868	12,762	394	181

Some features to be considered in the comparison is that during 1933 much of the initial production is that reported on choke while in 1929 and 1930 it was open flow. Also 1928 and 1929 were years of big gas development in the Laredo and Corpus Christi districts to supply the new pipe lines to San Antonio and Houston.

In the early part of 1933 major companies were taking on very little acreage and some had a fixed policy of turning leases into paid-up royalty wherever possible and were releasing leases not most desirable. The latter part of the year was marked by large purchases, including the leasing of the King ranch in the coast country between Corpus Christi and Brownsville amounting to more than 1,000,000 acres by the Humble Oil & Refining Co., the leasing of other big blocks by Humble, Continental and others.

New Pools Opened

Nineteen new pools of more or less importance are credited to 1933 and in addition some producers were completed in territory a little removed from other pools and it yet remains to be proved whether they are new pools or not. Duval County gets seven of them. The list by counties follow:

Duval County

Company, well, pool name—
Smith & Capps, No. 1 Peters, North Kohler
Al Buchanan, No. 1 Duval Ranch, Eagle Hill
DeSoto Oil Co., No. 1 Wood-Welder, Ignacio
Conway & Campbell, No. 1 Hoffman, not named
Wm. B. Stewart, No. 2 Duval Ranch, extension
Magnolia, No. 1 Duval Ranch, extension (second sand)

Bee County

Dash Production, No. 1 Ruhman, not named
McLain, No. 1 Weiss, not named

Starr County

Sun Oil Co., No. 1 Guerra, Cuevitas
Jeffries-Lambeth, No. 1 Starr Cattle Co., not named

Bastrop County

Humble, No. 1 Hassler, Hilbig
Marts & Beavens, No. 2 Reyes, Cedar Creek

Caldwell County

F. L. Thomson, No. 1 Lawler, not named

Jim Wells County

Magnolia, No. 2 Seeligson, Premont

Live Oak County

Loma Oil Co., No. 1 Griffith, not named

Williamson County

Fritz Fuchs, No. 1 Zeischang, Byersville

Zapata County

Arthur H. Wray, No. 1 Gopher Estate, not named

Bexar County

Von Ormy Oil Co., No. 1 Carruth, Von Ormy

Duval County New Pools

One of the most important discoveries in northern Duval County was the Stewart or Northwest Extension Pool to the North Government Wells Pool. Some have called it the Northwest Extension because there is only about a half mile between the two pools but there is doubt whether they will ever merge. The first producer was brought in by William B. Stewart and was his No. 2 Duval County Ranch Co., 330 feet from the north line and 990 feet from the east line of the south half of the southwest quarter of Survey No. 362. It was completed as a gas well in the Cole sand topped at 1,557 feet, and was completed in April.

In July, Magnolia Petroleum Co. drilled its No. 1 Duval County Ranch Co., 330 feet from the south and east lines of the northeast quarter of Survey No. 363, a half mile northwest of Stewart's well and completed it in the Government Wells sand at 2,264 feet for 95 bbls. a day on the pump and the field started immediately developing the Government Wells sand while the Cole sand has not been bothered with except that recently Sun Oil Co. completed its No. 15 Weiderkehr, in Survey 359, just 1,980 feet due south of Stewart's No. 2 Duval County Ranch Co. in Survey No. 362. It was completed as a gas well, doubtless to use the gas for fuel in developing leases on both sides of the gasser.

Development of the Government Wells sand had extended the field by the last of December to a little more than a mile north and south and to a little over half a mile east and west. At the close of December the field had 21 producers and was producing about 16,000 bbls. monthly under state restriction. The field is not likely to spread east and west. Duval fields run mainly north and south. Any extension south for 2 miles is on Sun Oil Co. leases and any extension north for a half mile is on Humble and Magnolia acreage and beyond that scattered leases.

Another important discovery in northern Duval County was the Eagle Hill Pool, an old field in the Cole sand which mainly has been a gas-producing sand in Duval County, the East Cole Field being one of the biggest gas districts in the State.

The discovery well in this pool was drilled by Al Buchanan, No. 1 Duval County Ranch Co., 1,650 feet from the east line and 990 feet from the south line of the south half of the north half of Survey No. 206, approximately 4 miles north of the North Government Wells Pool. It was completed in the Cole sand at 1,475-83 feet and was estimated at around 500 bbls. daily flowing. It was completed late in October and the first pipe line runs were reported for November and were 6,026 bbls. for the month. At the close of December six producers were completed and two others being completed and others drilled.

North Kohler

Smith & Capps drilled No. 1 Peters, a gas well, and discovery well of the North Kohler Pool. The well is 330 feet from the north line and 340 feet from the east line of the northeast quarter of the southeast quarter of Survey No. 178, a few miles northeast of the Kohler Field. Smith & Capps sold their interest to Shasta Oil Co. Highland Oil Co. was associated in the drilling of the well. It was completed at 2,438-52 feet, set casing at 2,420 feet and was rated at 20,000,000 feet of gas. Several other tests were drilled in that district. The discovery well was completed in January but further efforts failed thus far to develop much of a field except for gas though there were some wells that showed considerable oil. It is in the Government Wells sand with the nearest Government Wells sand production, the Sarnosa Field, 8 miles northeast. The Kohler Field, 2½ miles southwest, is producing from the Cole sand and mainly gas.

T. J. Conway and C. A. Campbell drilled No. 1 Hoffman, 300 feet from the northwest line and 1,650 feet from the northeast line of Survey No. 114, about 4 miles east and a little south of the Sarnosa Pool, at 2,749-56 feet and got a 30,000,000-foot gas well. It stopped in sand. It was on acreage secured from Plymouth Oil Co. which had drilled two failures more than a mile east. Later Plymouth drilled No. 3 about a quarter of a mile east of the gas well and it had 85 feet of sand at 2,745-2,830 feet with a 2-foot shale break and had a little evidence of oil but was abandoned as a failure. Top of the Jackson in this well was at 1,970 feet. The ample thickness of the sand seems to indicate the next logical thing to do would be to deepen the discovery well or drill another close to it and case off the upper part of the sand.

Ignacio Pool

Another new pool is somewhat indicated by the DeSoto Oil & Gas Co.'s No. 1 Wood-Welder, as gas well, and No. 2 Wood-Welder, an oil well, in the Government Wells sand at about 2,165 feet, 2 miles north and 1½ miles east of the North Government Wells Pool. No. 1 is 1,980 feet from the west line and 950 feet from the north line of Survey No. 211, and No. 2 is 660 feet east of it.

Deep Tests

In the north end of the North Government Wells Pool, Navarro Oil Co. carried its No. 27 Hahl, 1,650 feet from the south and east lines of the west half of Survey No. 360, to 3,106 feet for a deeper test but it failed to get production. Completed in the first instance at 2,292 feet there was a poor completion job and it made some water so it was carried down to test other possibilities and failing to get anything was plugged and abandoned and No. 27-A Hahl drilled 53 feet north and completed for a good well.

In the Kohler Pool, Humble Oil & Refining Co. deepened its No. 22 Kohler from the Cole sand at 1,860 to 2,812 feet but failed to find production and was abandoned. This test is only a couple of locations south of the company's No. 50 Kohler that was drilled to 7,725 feet.

Duval County Pools

Thus far in Duval County with its pools lying in trends north and south or slightly northeast and southwest, there is only a little production east of the Government Wells, Kohler and East Cole line of pools. The Driscoll Pool, 12 miles east of the south end of the Kohler Pool, with several producing wells was leased during recent months from fee owners by Continental Oil Co., the Conway & Campbell gas well in Survey 114, 4 miles east of the Sarnosa Pool and about 15 miles due north of the Driscoll Pool being the only production.

There has been some wildcatting along that general line and during the year Stanley Smith drilled his No. 1 Pena in Survey No. 79 about 7 miles east of Government Wells and at 1,931 feet had a well that produced considerable gas for a time but later went dead. Two tests have been drilled near it but developed no production.

Starr County

Sun Oil Co. discovered the Cuevitas Pool in northwestern Starr County with No. 1-A Guerra, 1,140 feet from the southwest line and 6,985 feet from the southeast line of the Cuevitas grant, and in sand at 2,208-32 feet got a well making 17,000,000 feet of gas and 360 bbls. of 37 gravity oil daily. This discovery well was completed the last of June and since then the company has drilled and completed four oil wells, three gas wells and four dry holes, and McGinley drilled two failures 2 miles southeast and Mims and others one failure 2 miles northwest.

Jeffries-Lambeth

Jeffries-Lambeth Drilling Co. drilled No. 1 Starr County Cattle Co., 11,572 feet from the north line and 2,490 feet from the east line of Porcion No. 89 of the jurisdiction of Camargo in Starr County, 8 miles northeast of Rio Grande City, and in sand at 2,450-55 feet got a gas well estimated at 50,000,000 feet and making some gasoline. No development work has been attempted since except at considerable distance from the discovery well and these resulted in failures.

Bee County

Two discoveries were made in northern Bee County late in the year resulting in two producers and two prospective new pools. Dash Production Co. completed No. 1 Ruhman, 5 miles northwest of the Pettus Pool in sand at 3,176-3,205 feet, estimated at 30,000,000 feet of gas and 50 bbls. of oil and engaged in building a separator. The loca-

tion is 525 feet from the west line and 150 feet from the north line of the lease in the J. M. Thurston Survey and in Block 7 of Butler's Subdivision of the Medio ranch.

W. P. McLain completed No. 1 Weiss about 4 miles southwest of the Pettus Pool in sand at 4,190-4,208 feet for about 30,000,000 feet of gas daily and about 1 bbl. of 71 gravity oil hourly. It is approximately 650 feet from the southeast line and 2,500 feet from the northeast line of B.&B. Survey, Abstract No. 130, and is about 400 feet east of the center of a line drawn between E. S. Price's No. 1 and No. 2 Weiss in the same survey. The Price tests, drilled more than a year ago, had a considerable gas showing but the holes were lost. Both the Price tests and Dash Production Co.'s No. 1 Ruhman and McLain's No. 1 Weiss are in the Pettus sand.

Bastrop County

Marts & Beavens discovered the Cedar Creek Field in Bastrop County, producing from Serpentine, with their No. 2 Reyes drilled on the 68-acre Reyes tract in the Addison Lytton League and near the town of Cedar Creek in southwestern Bastrop County. No. 1 Reyes was 750 feet from the west line and 150 feet from the south line of the tract and got a little Serpentine and a little oil but failed to make a well and No. 2 Reyes was located 640 feet northeast of No. 1 and got the Serpentine at 1,695-1,707 feet and the initial production on the pump increased about the third or fourth day to 175 bbls. daily. The discovery well was reported completed June 20 and since then Marts & Beavens have drilled Nos. 3, 4 and 5 Reyes and No. 2 Orgain as producers, and Cole Petroleum Co. has drilled Nos. 1 and 2 American National Bank (carried by some as Nos. 1 and 2 Rowe). Marts & Beavens' No. 3 Reyes was estimated initially at 150 bbls., No. 2 Orgain at 240 bbls. of which 14 per cent was water, and Cole's No. 2 American National Bank made 100 bbls. of oil and 20 bbls. of water.

The most important discovery in Bastrop County and along the Balcones fault zone during the year was the Hilbig Serpentine Pool discovered by Humble Oil & Refining Co. This wildcatting for, and development of Serpentine pools, was responsible for Bastrop County standing fifth in Southwest Texas for number of tests completed.

Humble's No. 1 Annie Hassler, 750 feet from the west line and 330 feet from the south line of the lease in the Samuel Wolfensbarger Survey, 8 miles southwest of the town of Bastrop, was the discovery well, with Serpentine topped at 2,468 feet, total depth 2,577 feet and beginning the second hour it produced 78 bbls. hourly till choked down for storage and pipe line connection. Oil is 38 gravity. All the acreage was held by Humble which has drilled about 20 tests, all but a few producers.

Williamson County

Eight miles southeast of Taylor, Fritz Fuchs drilled No. 1 Zeischang for a

Southwest Texas

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
AGUA DULCE:													
Daily average	6	25	22	13	13	9	74	49	21	27	26	12	
Month	184	710	688	395	407	257	2,289	1,516	630	1,676	788	381	9,921
BEXAR COUNTY:													
Daily average	488	500	503	554	616	608	585	583	630	557	559	545	
Month	15,122	14,005	15,597	16,608	19,090	18,248	18,144	18,071	18,912	17,271	16,766	16,895	204,729
BRANYON:													
Daily average	38	33	42	56	45	34	64	80	75	40	32	28	
Month	1,176	920	1,300	1,674	1,390	1,032	1,985	2,476	2,242	1,244	961	872	17,272
BRUNER (Salt Flat):													
Daily average	6,233	6,299	5,970	5,988	6,314	5,855	5,918	5,827	5,625	5,303	4,764	4,677	
Month	193,227	176,377	185,075	179,642	195,738	175,640	183,457	180,648	168,747	164,382	142,929	144,976	2,090,838
BUCHANAN:													
Daily average	46	42	44	45	42	41	47	50	46	41	46	35	
Month	1,420	1,174	1,368	1,359	1,306	1,243	1,462	1,546	1,375	1,272	1,380	1,085	15,990
CHAPMAN:													
Daily average	824	805	795	791	780	742	642	629	690	613	629	679	
Month	25,548	22,543	24,648	23,727	24,175	22,247	19,902	19,507	20,709	19,006	18,877	21,042	261,931
DALE:													
Daily average	212	221	223	244	206	204	215	227	254	233	227	228	
Month	6,576	6,183	6,911	7,320	6,382	6,115	6,659	7,037	7,616	7,223	6,803	7,074	81,899
DARST CREEK:													
Daily average	13,897	13,748	14,040	13,026	12,813	12,370	12,514	12,669	11,270	9,885	9,338	9,608	
Month	430,803	384,948	435,246	390,772	397,207	371,108	387,939	392,742	338,089	306,441	280,104	297,860	4,413,259
DUNLAP:													
Daily average	150	146	179	206	123	142	155	101	38	21	67	60	
Month	4,655	4,081	5,543	6,178	3,811	4,250	4,811	3,130	1,137	650	2,013	1,859	42,118
GOLIAD:													
Daily average	46	41	35	36	31	34	32	30	25	.....	.....	.....	
Month	1,426	1,145	1,080	1,074	969	1,020	992	928	748	.....	.....	.....	9,382
JACOBS:													
Daily average	307	280	211	234	252	251	349	358	388	329	275	250	
Month	9,519	7,846	6,543	7,027	7,810	7,522	10,818	11,104	11,640	10,203	8,263	7,741	106,036
KINGSVILLE:													
Daily average	98	104	102	93	80	81	79	80	76	67	74	69	
Month	3,032	2,910	3,164	2,803	2,488	2,435	2,444	2,476	2,277	2,077	2,228	2,132	30,466
LARREMORE:													
Daily average	55	55	52	47	44	46	52	58	47	50	53	51	
Month	1,700	1,545	1,610	1,407	1,360	1,394	1,617	1,794	1,412	1,548	1,602	1,581	18,570
LULING:													
Daily average	7,307	7,207	7,251	7,006	6,453	6,633	6,609	6,050	6,347	6,593	6,415	6,455	
Month	226,519	201,793	224,786	210,184	200,037	198,987	204,880	187,561	190,414	204,386	192,422	200,111	2,442,080
LYTTON SPRINGS:													
Daily average	549	523	530	521	453	758	508	506	507	490	466	520	
Month	17,013	14,641	16,436	15,628	14,041	22,734	15,752	15,679	15,210	15,190	13,982	16,126	192,432
HILBIG:													
Daily average	.....	47	131	170	540	722	997	1,216	1,036	891	847	779	
Month	.....	1,319	4,067	5,108	16,745	21,667	30,902	37,695	31,076	27,620	26,410	24,148	226,757
JOLIET:													
Daily average	.....	.....	.....	.....	31	27	36	37	64	36	29	32	
Month	.....	.....	.....	.....	964	805	1,116	1,144	1,918	1,117	878	996	8,938
CEDAR CREEK:													
Month	.....	.....	.....	.....	.....	.....	33	56	112	167	142	142	
Daily average	.....	.....	.....	.....	.....	.....	1.029	1.736	3,357	5,169	4,265	4,413	19,969
MANFORD:													
Daily average	79	69	63	61	49	61	63	63	52	55	57	56	
Month	2,447	1,937	1,950	1,830	1,513	1,832	1,951	1,960	1,566	1,709	1,714	1,729	22,138
McMULLEN (Callihan):													
Daily average	15	50	65	54	67	67	75	76	75	74	69	71	
Month	460	1,408	1,980	1,620	2,071	2,010	2,356	2,349	2,261	2,296	2,081	2,206	23,098
MEDINA COUNTY:													
Daily average	23	24	24	24	23	29	21	21	20	21	21	23	
Month	719	670	741	729	717	694	650	654	606	647	626	714	8,167
MINERVA:													
Daily average	334	334	334	327	334	286	335	334	333	329	334	261	
Month	10,358	9,352	10,350	9,802	10,350	8,586	10,377	10,352	9,982	10,202	10,013	8,090	117,814
MIRANDO DISTRICT:													
Daily average	16,242	16,669	18,758	20,040	20,698	21,282	20,970	23,350	23,304	25,480	18,576	17,652	
Month	503,508	466,736	581,492	601,213	641,632	638,453	650,078	723,842	699,108	789,887	557,284	547,211	7,400,444
OGDEN (Bateman):													
Daily average	55	45	29	126	201	197	375	293	245	329	577	523	
Month	1,700	1,260	893	3,774	6,231	5,904	11,629	9,096	7,346	10,199	17,311	16,216	91,559
PETTUS DISTRICT:													
Daily average	3,749	3,811	3,952	3,601	3,335	3,543	3,144	2,870	3,136	2,573	2,267	2,342	
Month	116,215	106,700	122,518	108,021	103,380	106,297	97,472	88,969	94,082	79,760	67,996	72,594	1,164,004
SAL MAR:													
Daily average	3	15	11	5	10	10	10	8	7	3	1	1	
Month	96	428	340	163	315	290	310	246	209	93	30	34	2,554
SAXET:													
Daily average	1,898	3,122	1,982	2,175	2,836	2,686	2,825	2,038	2,005	2,562	1,959	1,917	
Month	58,830	59,410	61,447	65,248	87,918	80,576	87,569	63,178	60,147	79,426	58,778	59,441	821,968
SOMERSET:													
Daily average	1,013	990	1,013	1,007	983	916	918	869	860	853	809	812	
Month	31,406	27,725	31,403	30,219	30,479	27,471	28,463	26,945	25,796	26,441	24,270	25,171	335,789
THRALL:													
Daily average	37	35	35	34	35	40	35	43	45	46	47	51	
Month	1,143	983	1,088	1,012	1,080	1,191	1,084	1,336	1,350	1,424	1,407	1,550	14,648
TULETA:													
Daily average	541	206	212	208	218	216	196	154	117	93	84	82	
Month	16,777	5,762	6,570	6,245	6,756	6,487	6,078	4,745	3,512	3,074	2,519	2,542	71,067
WHITE POINT:													
Daily average	47	46	47	43	42	52	43	45	43	41	32	26	
Month	1,457	1,280	1,451	1,283	1,308	1,561	1,334	1,401	1,257	1,266	964	803	15,370
YOAST:													
Daily average	126	122	126	117	128	114	128	136	130	118	105	98	
Month	3,908	3,412	3,902	3,510	3,964	3,428	3,968	4,211	3,908	3,659	3,155	3,038	44,063
Daily average	54,418	54,614	56,780	56,854	57,795	58,049	58,049	58,906	57,622	57,954	48,927	48,085	55,685
Total 1933	1,686,944	1,529,303	1,760,187	1,705,575	1,791,634	1,741,484	1,799,517	1,826,074	1,728,639	1,796,558	1,468,819	1,490,636	20,326,270
Total 1932	1,821,552	1,836,872	1,883,784	1,730,681	1,971,657	1,849,784	1,896,160	1,884,996	1,858,458	1,903,039	1,795,298	1,712,103	22,144,384
Total 1931	2,698,916	2,362,696	2,230,534	2,211,571	2,059,458	2,000,546	2,009,113	1,996,070	1,953,904	1,991,702	1,877,856	1,949,699	25,342,065
Total 1930	1,981,174	1,813,895	1,977,584	1,893,330	2,188,405	2,421,341	3,071,290	3,423,468	3,239,136	3,427,015	2,763,804	2,832,752	31,033,194
Total 1929	1,453,427	1,527,677	2,021,412	2,199,207	2,412,599	2,424,277	2,349,745	2,350,867	2,148,828	2,029,702	1,818,328	1,744,091	24,481,160
Total 1928	825,036	789,190	839,945	807,553	804,627	774,570	804,643	820,468	844,550	892,350	912,608	1,168,912	10,284,452
Total 1927	1,245,673	1,075,312	1,167,584	1,112,760	1,092,233	1,020,180	1,005,733	985,149	959,850	923,242	868,290	878,502	12,331,498
Total 1926	1,233,397	1,100,720	1,220,842	1,176,630	1,208,163	1,062,020	1,303,333	1,425,690	1,371,420	1,368,092	1,284,180	1,278,502	15,132,989

small 10-bbl. well opening another Serpentine pool in Williamson County. It had the Serpentine from 855-904 feet. Taylor Refining Co. interests bought the proposition before it was completed and organized the Taylor Production Co. which has since drilled two other producers and four dry holes and some outside interests have drilled a couple of dry holes. The best producer is Taylor Production Co.'s No. 1 J. S. Jones, 450 feet from the northwest and southwest lines of tract in the H. White Survey, and on the pump it made around 75 to 100 bbls. daily, in Serpentine at 935-40 feet.

Jim Wells County

Magnolia Petroleum Co. in April completed No. 2 Seeligson in sand at 3,244-51 feet flowing 100 bbls. daily. It is 3,000 feet from the east line and 150 feet from the south line of the V. Canales Survey No. 218 in southern Jim Wells County, northwest of Premont, the discovery well of a new pool 25 miles or more from any production. The field has not been developed though pipe line was run to the railroad track about 4 miles away and loading rack put in. Trinity Drillers have drilled one test a mile west and are below the sand depth of the Magnolia without getting production.

In Live Oak County, Jacob, Buzzini & Pickett completed No. 1 J. W. Griffith, 150 feet north of the highway and on the McMullen-Live Oak County line in the northwest corner of the county a few miles north of the Jacob Pool in McMullen County, in sand at 915-27 feet, for a small oil well. No development has been attempted since.

In Zapata County, Arthur H. Wray completed No. 1 Gopher Estate, 150 feet from northwest and northeast lines of Block 19, of the Fullerton Subdivision of Share 8 of the J. V. Borrego grant, for 5,000,000 feet of gas at 348 feet. One other gas well has been completed since. It is several miles west of the Mirando Valley Pool.

In Caldwell County, F. L. Thomson completed No. 1 Lawler in the James Berry Survey, 150 feet from north and west lines of the tract, at a total depth of 2,045 feet with the Austin chalk topped at about 2,000 feet for 50 bbls. daily. It is south of the northeast end of the old Luling Field.

Miscellaneous

Worthy of mention is Magnolia Petroleum Co.'s No. 1 C. G. Porter in Karnes County which extended the North Pettus Pool a considerable distance east. Completed in the regular sand at 3,656-61 feet it was estimated to swab 200 bbls. daily and No. 2 Porter-State drilled next flowed 150 bbls. the first hour. All the acreage on east for a mile or more in that direction belongs to Magnolia and it has done no further drilling.

In western Nueces County, Banquette Oil Co. drilled No. 1 Ingram and in sand at 4,879-82 feet it flowed 50 bbls. or more daily of high gravity oil in addition to gas with pressure of 1,700 pounds on quarter inch choke. It is 330 feet from the north and west lines of an 80-acre tract, Block 6, Section 7, of S. R. Peters Survey and a little east of the 2,000-foot gas production of the Agua Dulce Field. Houston Oil Co. had drilled two producers of similar nature to this sand and more than a year ago, and No. 1 Ingram is the first drilled since. It has started other development and Garland Clymore is drilling and arranging to put in a natural gasoline plant.

Edwards Lime Development

One of the features of the year was the drilling of deep tests for Edwards lime along the Balcones fault farther removed to the south and east than wildcatter locations have been staked in years past. In that zone wildcats heretofore have stopped 1,000 feet or more above the Edwards. The industry watched these tests to see if the Edwards at that distance back from the fault and at the greater depth would be found porous and if there would be any showings of oil and gas and if conditions would be similar to what they are nearer the fault where the Edwards is found at from 2,150 feet in the old Luling Field to 2,700 feet in the Darst Creek Field. In each of the deep tests drilled farther back to around 1 mile or more depth, the Edwards was found porous and there were at least traces of oil.

In northern Lee County, on the Tanglewood fault, Paton Brothers drilled No. 1-B Turner to 6,625 feet where it was abandoned dry topping the Edwards at 6,600 feet. The Edwards was so porous it was difficult to get a core and there were some traces of oil.

In Bastrop County, Texas & Gant drilled No. 1 Mikulec, 330 feet from the northwest and southwest lines of the 203-acre tract in the William Barton Survey, 4 miles southwest of Smithville. It topped the Edwards at 7,466 feet, cored porous Edwards with a sulphur odor. Abandoned dry at 7,505 feet.

In central Wilson County, Humble Oil & Refining Co. drilled No. 1 Hardy, 607 feet from the south line and 466 feet from the east line of the Hardy 65-acre tract in the Joseph Reynolds Survey, 8 miles northeast of Floresville. Edwards was topped at 5,198 feet and the hole was abandoned at 5,218 feet. It showed sulphur water and Edwards was porous. The company thought enough of the territory to start No. 1 Houston in the same survey a mile or so southwest of No. 1 Hardy, but it had not reached the Edwards as this review was written.

In central Frio County, Amerada Petroleum Corp. drilled No. 1 Halff & Oppenheimer, 1,200 feet from the north line and 200 feet from the east line of the W. F. Halsel Survey, and topped the Edwards at 6,302 feet and abandoned the hole at 6,312 feet, with the Edwards porous and with a trace of oil. The company has moved several miles southwest and at the close of the year had No. 1 Doerring down close to Edwards lime contact.

SOUTHWEST TEXAS

Summary of Completions for Year 1933

Pool—	Comp.	Prod.	Dry	Gas
Adams	2	0	1	1
Byersville	4	125	2	0
Carolina-Texas	1	0	0	1
Cedar Creek	9	840	3	0
Chapman	1	0	1	0
Chittim	1	0	1	0
Cole (East)	2	0	2	0
Crowther	1	0	1	0
Cuevitas	12	2,340	6	2
North Dale	17	1,192	8	0
Darst Creek	1	0	1	0
Eagle Hill	4	800	0	1
Eckert	27	229	5	0
Escobas	28	4,225	4	2
N. Gov. Wells	208	112,992	20	10
S. Gov. Wells	9	1,587	1	0
Hilbig	14	11,398	4	0
Jacobs	12	705	3	0
King	1	0	1	0
Kohler	1	0	1	0
North Kohler	5	15	2	2
Laurel	49	7,894	22	3
La Pryor	1	0	1	0
Los Olmos	29	203	18	2
Martinez	2	0	0	2
Mirando Valley	1	0	1	0
Moca	11	520	4	2
Palangano	2	0	2	0
Peters	1	0	1	0
Pettus	3	295	0	0
North Pettus	2	275	0	0
Piedras Pintas	1	0	1	0
Riddle	3	1,720	2	0
Rio Grande	5	45	4	0
Sarnosa	23	5,823	7	1
Saxet	27	2,965	13	4
S.R.C.	1	150	0	0
Schimmel	1	0	1	0
Tuleta	9	1,140	4	3
Villa	1	0	0	1
Von Ormy	2	25	1	0
Webster	1	0	1	0
White Point	2	0	0	2
Wentz	1	0	1	0
Miscellaneous	413	4,350	376	13
Total	951	161,853	527	52

Completions by the Month

Month—	Comp.	Prod.	Dry	Gas
January	80	21,639	38	3
February	114	12,949	69	9
March	86	6,837	53	3
April	85	10,591	49	7
May	59	3,991	38	3
June	74	11,923	55	3
July	53	9,277	31	1
August	70	14,948	44	3
September	74	7,031	40	3
October	82	27,303	35	3
November	82	16,879	32	7
December	92	18,485	43	7
Total year 1933	951	161,853	527	52
Total year 1932	624	121,836	471	49
Difference	327	40,017	56	3

Six Rich Pools Opened in Oklahoma During Year

(Continued from Page 64)

ties of Creek, Muskogee, Okmulgee, Okfuskee, Wagoner and Tulsa Counties, has been in progress. Considerable drilling has been under way in these areas, some of which have developed new production.

In the West Holdenville area of Hughes County an active campaign was in progress at the start of the year. This development was extended to the south and west by large wells. The West Holdenville Pool was discovered in April, 1932, and during the first part of 1933 became an active district.

In February potential tests on 24 wells in the West Holdenville Pool showed a total of 19,497 bbls. a day for a four-hour test. The gas volume of the 24 wells under the open flow tests totaled 424,591,000 feet a day.

The Roxana Pool, in Logan County, was active part of the year when deeper drilling uncovered a new producing sand. A number of old producers were drilled deeper to the School Land sand which yielded some large wells. The area was soon defined by a dry hole drilled by Shell Petroleum Corp. The test was No. 6 Sebronk, SE cor. SW NE Section 30-19-4w, and it found water in the School Land sand at 6,570-6,608 feet, where it was abandoned without finding any showing of oil. This was the first test in the area to miss finding oil production in the School Land sand and it was located on a lease on which were a number of wells producing from this horizon.

In southern Oklahoma the Tatums Pool was extended about 3 miles northwest by the E. M. Boring and Amos Drilling Co.'s No. 1 Riddle, NE cor. NW SW Section 4-1s-3w, which was completed for 30,000,000 feet of gas a day from sand series at 1,928-2,039 feet.

Another wildcat test about 2 miles northwest of the Tatums Pool, in Carter County opened another oil-producing area that was named the Tussey Pool. The Carter Oil Co.'s No. 1 Perkins, SE cor. NW SW Section 3-1s-3w, was the discovery well. It made 511 bbls. of oil the first 24 hours from sand at 2,740-70 feet. The total depth of the well was 2,855 feet. It was thought for a while that the Tussey and the Tatums Pool would join, but the Carter Oil Co. drilled two dry holes in Section 10-1s-3w, which definitely established the fact there was little chance of these two pools being one producing area.

New Production Record Made on the Gulf Coast

(Continued from Page 55)

acreage with any merit at all has been in great demand.

The past year was also marked by a steady acquisition of proven acreage on the part of larger companies, particularly in such fields as Conroe and Greta. A new era evidently has been established in which new ideas of high value have been placed on the value of Gulf Coast production and potential producing territory.

Hankamer Field

Gulf Production extended production of its Hankamer Field, Liberty County, approximately 3,000 feet east by its No. 1 Crowe & Jacobs, H.&T.C. Survey, Section 21, which flowed approximately 250 bbls. of fluid, 30 per cent b.s. and water, from sand at 4,921 feet, but this was killed and the hole deepened to 6,756 feet and abandoned. A second deep test was drilled but it resulted in failure and was abandoned. A third test, to be drilled by Miramar Oil Corp., to which company the lease has been "farmed out," has been started.

Another prospect, just east of Hankamer on the Liberty-Chambers County line, attracted considerable attention because of two deep tests drilled by Yount Lee Oil Co., one going to approximately 9,340 feet and the other to around 9,560 feet. These are the deepest tests ever drilled on the Gulf Coast. Development generally throughout the Gulf Coast was featured by deeper and deeper drilling and numerous tests, both wildcats and in proven fields, were put down to depths below 7,000 and 8,000 feet.

IMPORTANT BOOKS
for the Oil Man's Library

"DEEP WELL DRILLING"

"Deep Well Drilling," by Walter H. Jeffery, a recognized authority on this general subject, has recently been revised and brought up to date and is now appearing in its third edition. It is an 816-page book illustrated with 425 cuts and drawings and many inserts of diagrams of derricks, etc.

Anyone who is interested in any phase of production in the petroleum industry can hardly afford to be without a copy of this book, for it deals with all subjects from the geology of petroleum and geophysical methods of prospecting for favorable locations for accumulations of gas and oil, through the building of derricks, drilling the hole with cable tools and rotary outfits, also diamond drilling methods, to the finishing of high pressure wells, and finally closes with information on the various production methods applied to small wells.

The datum contained in this book is recognized as authoritative and it has been used as a text book in many universities and technical schools offering a petroleum engineering course. It can be studied by anyone who desires to learn more about the petroleum industry, or used as a reference book by petroleum engineers, drillers, supply men and executives.

Even an experienced oil man is often confronted with a need for specific information about a job of cementing casing, the use of packers, well shooting, or applying gas-air lift methods to a well and Mr. Jeffery has separate chapters upon each of the above subjects in this book as well as many others equally important. In fact it is a well rounded out book written in language that is such as to be readily understood by both layman and technologist, and is worthy of a place in the library of executive, petroleum engineer, geologist or anyone else who has any interest whatsoever in the oil business even though he may be employed in transportation, refining or marketing divisions.

"Deep Well Drilling" may be purchased through the book department of The Oil and Gas Journal at the regular price of $6 postpaid.

(This review, printed in 1933, is reprinted for the benefit of new subscribers.)

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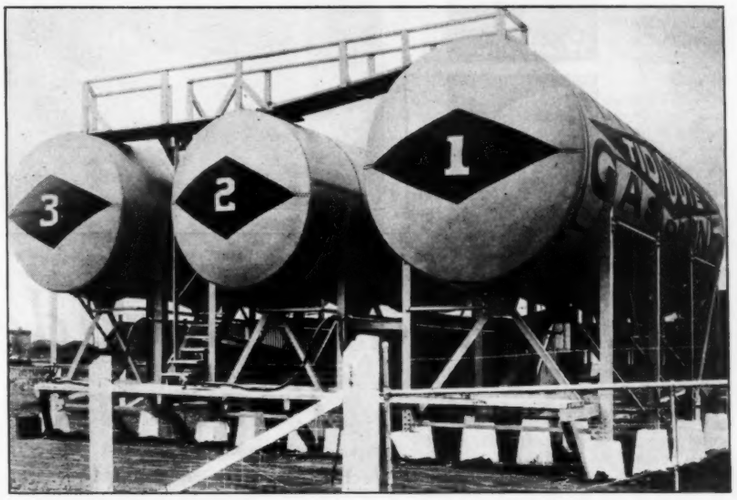
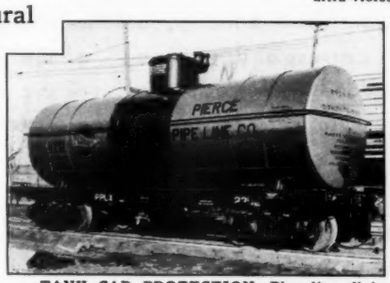
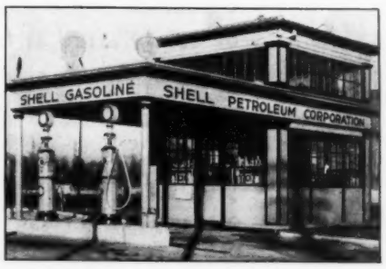


TO PREVENT EVAPORATION LOSSES—The Tidioute Refining Co., like many other concerns in the petroleum industry, uses Degraco Silvr-Cool as a finish for oil tankage. Aside from greatly improving the appearance of such facilities, Silvr-Cool, because of its unusual light reflecting qualities, prevents the absorption of excessive heat from the sun's rays, and thereby keeps down temperatures within the tanks, thus reducing evaporation losses. Unusual protection to the outer surface is also afforded by the peculiar characteristics of Silvr-Cool in reflecting the destructive ultra-violet rays in sun light.



TANK CAR PROTECTION—Pipe line divisions of the petroleum industry use Degraco paints for protecting tank cars. The tank car illustrated above with its silver-like coating, and intense metallic lustre is finished with Degraco Silvr-Cool, the super-aluminum paint. Silvr-Cool is the choice of many of the largest oil refiners, marketers and producers.



FINISHES FOR GASOLINE STATIONS—Here the Shell Petroleum Corporation uses an attractive combination of Degraco colors. The harmony of these paint colors and their ability to retain their lustre add much to the appearance value of the structures and attract business.

FOR STORAGE TANK PROTECTION—The Texas Company has used Degraco paints for the protection and decoration of their storage yards in Detroit, as shown above. In the United States Silvr-Cool is the choice of four of the largest oil producers, refiners and marketers, one company having used Silvr-Cool on steel oil tankage of more than 12,000,000 barrels capacity. Many other companies protect their largest oil containers with Silvr-Cool.

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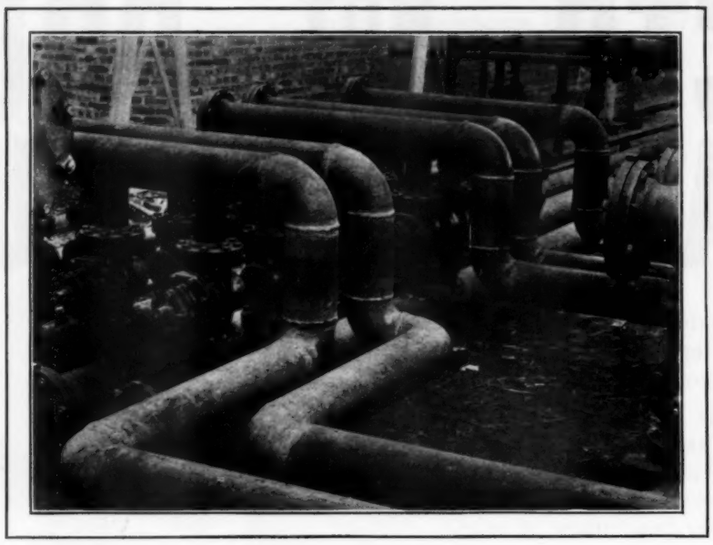

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Four Pools Were Opened in Kansas in 1933 and Over Dozen Other Pools Were Extended

By W. A. SPINNEY

Kansas operators in 1933 found their crude oil supply in good demand. Purchasers in the State found it hard to secure enough crude oil to meet their demands on account of the low allowables the state authorities kept in force, notwithstanding the larger nominations asked for by all of the purchasing companies.

Four new pools were discovered in Kansas in 1933 and some of the areas that were opened in 1932 were extended and developed. The new discoveries were the Gates Pool, in Section 27-21-13w, Stafford County; the Brandenstein Pool, in Section 10-19-10w, and the Thode Pool in Section 11-21-7w, both in Rice County, and the McCann Pool in Section 7-25-3, Butler County. The pools extended and developed include the Chase Townsite Pool in Rice County, Nikkell Pool in Harvey and McPherson Counties, Johnson Pool in McPherson County, Raymond Pool in Rice County, Hollow Pool in Harvey County, Cunningham Pool in Kingman County, Sharpe Pool in Rice County, Isern Pool in Barton County, Stoltenberg Pool in Ellsworth County, Heiken area in Ellsworth County, Breford area in Ellsworth County, Beyers and Orth areas in Rice County.

It is predicted that 1934 will see increased activity in Kansas which will be stimulated by two things. First, refiners believe that a shortage of crude oil will develop as there is practically no crude available in Kansas now except to those that produce it and it is expected this will result in increased field activity seeking crude for the general market.

Seismographs Busy

The other factor that will stimulate activity is the development of the geophysical machines. The use of the seismograph has become general in Kansas especially along the Abilene Arch, a trend that runs in a north and south direction from the Ritz-Canton Pool in McPherson County south into Oklahoma. A few fields have already been discovered along this trend.

Sumner County in southern Kansas was active from a leasing standpoint and was leased in blocks rather than in a checkerboard play. Several wildcat tests are expected to be started shortly after the first of the year in the county. Other blocks that have been taken in the vicinity include the region of Anson, Argonia, Mayfield, Wellington, Caldwell and Milan.

The use of the geophysical instruments will be in territories where there are no surface indications. Some of this territory has been worked by surface geology and nearly all has been reworked by core drill machines.

Chase Townsite's Rich Pool

The Chase townsite area in Rice County was one of the outstanding pools developed in 1933. The completion of a 2,400-bbl. well in June on the townsite was the signal for other operators to start an active drilling campaign. The discovery well had been completed in December, 1932, but it was making some water and little was thought of the possibilities of this area until E. F. Jones and others' No. 1 Rose, on a nine-acre tract, NE cor. SE SE Section 31-19-9w, was completed for 2,400 bbls. a day from Siliceous lime at 3,220-28 feet. It was the fifth producer completed on the townsite. This was the forerunner of an active drilling development and 28 wells were completed in the area during the year. All of the production on the townsite came from wells in Sections 31 and 32-19-9w, and the size of the wells ranged from 300 to 2,400 bbls. daily.

Hollow Pool's Lively Development

The 98 completed wells in Harvey County was the result of the rapid development of the Hollow Pool, which was discovered in 1931. A new producing horizon was uncovered in May, giving the field its fourth pay sand. It was the Wilcox sand which was found to be productive at the Producers & Refiners Corp.'s No. 2 Martens in Section 19-22-3w, which well swabbed at the rate of 100 bbls. an hour from sand at 3,510-14 feet.

In April the Magnolia Petroleum Co.'s No. 1 Schmidt, in Section 30-22-3w, found the third producing horizon, the Kansas City-Lansing lime at 2,499-2,520 feet, where it made around 100 bbls. a day. It was later treated with acid and made 20 bbls. of oil an hour.

These two additional producing horizons in the Hollow Pool gave this field added importance and it was due to this fact that Harvey County led the State in initial production of 70,107 bbls. from the 98 completed wells. The majority of the wells in the field found their production from the Hunton lime while some were producing from the chat formation.

An interesting condition found in the Hollow Pool is the fact that it is the only Hunton lime pool in the State where oil has also been found in lower formations. In other places in the State of Kansas water has been found in formations below where the Hunton lime has carried oil. The Wilcox sand was found to be productive in two parts of the Hollow Field, one being in the south end of the field and the other in the northern

Kansas

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
SEDGWICK COUNTY:													
Wright—													
Daily average	2,843	2,695	2,669	2,657	2,416	2,274	2,547	2,694	2,765	2,405	2,507	2,211	
Month	88,133	75,460	82,739	79,710	74,896	68,220	78,957	83,514	82,650	74,555	75,210	68,541	932,585
Greenwich—													
Daily average	3,090	3,316	4,139	5,356	5,566	5,264	4,437	3,499	4,792	4,153	3,129	2,907	
Month	95,790	92,848	128,309	160,680	172,546	157,920	137,547	108,469	143,760	128,743	93,870	90,117	1,510,599
Robbins—													
Daily average	176	164	154	157	137	130	193	490	941	368	569	426	
Month	5,456	4,592	4,774	4,710	4,247	3,900	5,983	15,190	28,230	11,408	17,070	13,206	118,766
Eastborough—													
Daily average	2,498	2,208	2,198	2,095	1,540	1,496	1,483	1,551	1,989	1,539	1,632	1,482	
Month	77,438	61,824	68,138	62,850	47,740	44,880	45,973	48,081	59,670	47,709	48,960	45,942	659,205
Miscellaneous—													
Daily average	629	645	602	556	688	602	1,262	1,171	1,058	710	854	716	
Month	19,499	18,060	18,662	16,680	21,328	18,060	39,122	36,301	31,740	22,010	25,620	22,196	289,278
MARION COUNTY:													
Florence-Urschel—													
Daily average	72	86	74	81	67	69	109	94	94	89	155	97	
Month	2,232	2,408	2,294	2,430	2,077	2,070	3,379	2,914	2,820	2,759	4,650	3,007	33,040
Peabody—													
Daily average	414	315	332	320	347	336	314	320	304	290	323	294	
Month	12,834	8,820	10,292	9,600	10,757	10,080	9,734	9,920	9,120	8,990	9,690	9,114	118,951
Covert-Sellers—													
Daily average	243	307	306	364	313	316	293	339	330	274	328	277	
Month	7,533	8,596	9,486	10,920	9,703	9,480	9,083	10,509	9,900	8,494	9,840	8,587	112,131
Lost Springs—													
Daily average	398	403	383	391	377	371	370	358	343	352	288	293	
Month	12,338	11,284	11,873	11,730	11,687	11,130	11,470	11,098	10,290	10,912	8,640	9,083	131,535
Davis—													
Daily average	392	391	396	377	396	388	448	465	463	217	322	319	
Month	12,152	10,948	12,276	11,310	12,276	11,640	13,888	14,415	13,890	9,827	9,660	9,889	142,171
BUTLER COUNTY:													
Elting—													
Daily average	1,335	1,455	1,330	1,358	1,335	1,304	1,372	1,456	1,394	1,075	1,334	1,110	
Month	41,385	40,740	41,230	40,740	41,385	39,120	42,532	45,136	41,820	33,325	40,020	34,410	481,843
Potwin—													
Daily average	282	286	319	306	348	326	462	471	533	414	775	593	
Month	8,772	8,008	9,889	9,180	10,788	9,780	14,322	14,601	15,990	12,834	23,250	18,383	155,798
South Augusta—													
Daily average	735	705	781	783	986	833	1,108	1,204	1,162	987	1,122	1,009	
Month	22,785	19,740	24,211	23,490	30,566	24,990	34,348	37,324	34,860	30,597	33,660	31,279	347,850
North Augusta—													
Daily average	657	678	629	681	623	629	866	851	877	717	995	726	
Month	20,367	18,984	19,499	20,430	19,313	18,870	26,846	26,381	26,310	22,227	29,850	22,506	271,583
Towanda—													
Daily average	1,360	1,332	1,388	1,861	1,866	1,847	1,892	1,909	1,991	1,962	2,150	1,980	
Month	42,160	37,296	43,028	55,830	57,846	55,410	58,652	59,179	59,730	60,822	64,500	61,380	655,833
Cameron-Robinson—													
Daily average	377	369	311	342	342	335	327	353	351	301	418	316	
Month	11,687	10,332	9,641	10,260	10,602	10,050	10,137	10,943	10,530	9,331	12,540	9,796	125,849
Sluss—													
Daily average	146	144	129	160	121	132	128	125	136	123	127	124	
Month	4,526	4,032	3,999	4,800	3,751	3,960	3,968	3,875	4,080	3,813	3,810	3,844	48,458
Nuttle-Koogler—													
Daily average	2,002	1,955	2,004	2,012	2,103	2,060	2,073	2,108	2,092	1,804	2,688	2,012	
Month	62,062	54,740	62,124	60,360	65,193	61,800	64,263	65,348	62,760	55,924	80,640	62,372	757,586
Wilson-Dunkle—													
Daily average	1,079	907	1,071	1,085	1,110	1,063	1,071	1,199	1,212	1,060	1,227	1,073	
Month	33,449	25,396	33,201	32,550	34,410	31,890	33,201	37,169	36,360	32,860	36,810	33,263	400,559
Eldorado—													
Daily average	4,780	4,225	4,795	4,812	4,948	4,863	5,299	5,234	5,289	4,835	5,510	5,080	
Month	148,180	118,300	148,645	144,360	153,388	145,890	164,269	162,254	158,670	149,885	165,300	157,480	1,816,621
Smock—													
Daily average	159	152	163	160	156	152	143	136	161	128	283	163	
Month	4,929	4,256	5,053	4,800	4,836	4,560	4,433	4,216	4,830	3,968	8,490	5,053	59,424

(Continued on Next Page)

part of the field, around Section 8-22-3w.

The discovery well in the Hollow Pool was drilled on a one-acre tract owned by a church organization. The pool is located along the Abilene Arch, the same as the Voshell Pool in McPherson County, which also produces from the Wilcox sand.

The Hollow Pool, in March, was extended a mile north by the Carter Oil Co.'s No. 1 Schmidt, SE cor. SW NW Section 17-22-3w. The well swabbed at the rate of 80 bbls. an hour from Hunton lime at 3,450-61 feet. Later in March the production was extended further north when the Texas Co.'s No. 1 Dyck, SW cor. NE SW Section 8-22-3w, found oil in chat at 3,170-3,201 feet. The well was completed for 1,000 bbls. of oil and 10,000,000 feet of gas daily.

New Pool in Stafford County

A pool was discovered in Stafford County in May giving that county its second producing area. The discovery well was Atlantic Oil Producing Co.'s No. 1 Gates, NW cor. SE Section 27-21-13w. It swabbed 240 bbls. of oil the first 24 hours from the Siliceous lime at 3,698-3,704 feet.

The well was located in the center of a block of 5,000 acres of leases controlled by the Atlantic Oil Producing Co. The location for this test was made after a core drilling and seismograph survey of the area. It was approximately 11 miles northwest of the nearest other production in the Richardson Pool in eastern Stafford County. The well was shut in awaiting a pipe line connection during most of the year. In December two offsets were staked, one a quarter of a mile north and the other a diagonal offset. Atlantic Oil Producing Co. and Magnolia Petroleum Co. are starting tests offsetting the discovery well.

KANSAS
Summary of Completed Wells in 1933

County—	Comp.	Prod.	Dry	Gas
Burton	14	3,232	6	0
Butler	6	195	3	0
Chase	2	175	1	0
Cowley	25	3,481	10	2
Coffey	1	30	0	0
Dickinson	1	0	1	0
Elk	9	70	6	0
Ellis	4	212	1	0
Ellsworth	22	6,573	7	0
Franklin	1	0	1	0
Greenwood	82	1,705	39	2
Harvey	98	70,107	11	0
Kingman	10	3,620	1	0
Lyon	1	0	1	0
McPherson	142	56,431	18	2
Marion	2	0	2	0
Morris	1	0	0	1
Ness	1	0	1	0
Reno	18	2,018	4	3
Rice	51	31,495	6	0
Russell	6	1,361	0	0
Sedgwick	15	10,127	3	0
Stafford	4	1,553	1	0
Sumner	3	600	2	0
Woodson	18	751	6	0
Saline	1	0	1	0
Norton	1	0	1	0
Pratt	1	0	1	0
Total 1933	540	193,736	134	16
Total 1932	572	193,139	188	21
Difference	32	597	54	5
Total 1931	470	144,921	129	112
Total 1930	1,036	228,296	423	168
Total 1929	1,058	165,611	453	52
Total 1928	1,157	101,043	455	115

Summary by Months

Month—	Comp.	Prod.	Dry	Gas
January	46	10,998	18	2
February	33	8,018	15	1
March	33	13,981	7	0
April	49	19,821	17	2
May	50	16,889	17	2
June	29	8,202	9	2
July	49	21,818	12	0
August	33	11,175	5	2
September	59	24,951	13	1
October	58	16,012	8	1
November	50	18,468	5	2
December	51	23,403	8	1
Total	540	193,736	134	16

Thode Pool

A discovery was made in September in Rice County about 7 miles west of the Welch Pool in the southeastern part of the county by Gardner and others' No. 1 Thode, C NW NW Section 11-21-7w. This well swabbed at the rate of 23 bbls. an hour for several hours from chat at 3,358-80 feet, and was shut in awaiting a pipe line connection. It was the only well completed in that area in 1933, and it was not until December that offsets were started. If this pool develops into an important area it will be the second pool in this part of the county to produce from the chat as the Welch Pool has been producing oil since 1926 from that formation.

Brandenstein Pool

Rice County yielded another new producing area in 1933 when the Atlantic Oil Producing Co.'s No. 1 Brandenstein, C SE SE Section 10-19-10w, flowed 420 bbls. of oil in six and one-half hours and 1,083 bbls. of oil in 24 hours from the Siliceous lime at 3,014-26 feet. This well was completed in December and no new locations were made offsetting the well up to the close of the year. The well is located about 5 miles northwest of the Chase townsite and is in the general vicinity of Orth Pool in Rice County.

Production in the Johnson Pool in McPherson County was extended about a mile to the north in December by the completion of the Mid-Kansas Oil & Gas Co.'s No. 1 Chindberg, NW cor. NE SE Section 13-19-3w, which was completed for 390 bbls. of oil a day from the chat at 3,008-27 feet. This field was discovered in 1932 and at the close of 1933 a total of 21 wells were producing in the Johnson Field.

The Raymond Pool in Rice County was extended to the north by a producing well and was also defined on the east by the completion of a Siliceous lime dry hole. This field was discovered in 1929 and had been inactive. The extension well was Palmer and others' No. 1 Schecht, SE cor. SW NW Section 16-20-10w, which pumped 410 bbls. of oil and 12 bbls. of water in 18 hours from Siliceous lime at 3,130-39 feet. It extended production a half mile north and a number of other wells were completed later in the year. The well was completed in September.

The field was defined on the east in April by J. McMorrow and Shawver Oil Co.'s No. 1 Kelly, SW cor. NW Section 22-20-10w. This well was started about two years previously and was drilled to 2,595 feet where it made approximately 2,000,000 feet of gas and was shut in at that depth. It was drilled deeper to the Siliceous lime at a total depth of 3,382 feet where it found water and was abandoned.

The Otis gas field in Rush County was developed after pipe line outlet was completed to the field. This is the most westerly county along the Barton-Ellsworth Arch. Gas was discovered in 1930 and only a few wells have been completed in the area since that time. A few of which were completed in the field in 1933.

10 New Wells in Cunningham Pool

The Cunningham Pool in Kingman County was active during the year 1933 where a total of 10 wells were completed,

Kansas (Continued)

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
Leon-Weaver—													
Daily average	1,959	1,896	2,036	2,061	1,526	1,607	2,154	2,207	2,420	2,011	2,795	2,330	
Month	60,729	53,088	63,116	61,830	47,306	48,210	66,774	68,417	72,600	62,341	83,850	72,230	760,491
Fox-Bush:													
Daily average	718	740	614	674	625	631	713	768	724	650	779	681	
Month	22,258	20,720	19,034	20,220	19,375	18,930	22,103	23,808	21,720	20,460	23,370	21,111	253,109
Douglass—													
Daily average	88	84	83	84	81	82	81	150	181	164	210	176	
Month	2,728	2,352	2,573	2,520	2,511	2,460	2,511	4,650	5,430	5,084	6,300	5,456	44,575
Keighly—													
Daily average	257	248	246	258	188	190	247	238	298	215	314	311	
Month	7,967	6,944	7,626	7,740	5,828	5,700	7,657	7,378	8,940	6,665	9,420	9,641	91,506
Benton—													
Daily average	49	36	44	35	36	36	44	41	41	40	19	27	
Month	1,519	1,008	1,364	1,050	1,116	1,080	1,364	1,271	1,230	1,240	570	837	13,649
Blankenship—													
Daily average	365	325	520	541	495	488	551	519	509	456	529	483	
Month	11,315	9,100	16,120	16,230	15,345	14,640	17,081	16,089	15,270	14,446	15,870	14,973	176,479
GREENWOOD AND WOODSON COUNTIES:													
Saliyards—													
Daily average	721	716	727	722	681	701	672	646	656	617	829	660	
Month	22,351	20,048	22,537	21,660	21,111	21,030	20,832	20,026	19,980	19,127	24,870	20,460	254,032
Teeter—													
Daily average	2,547	2,414	2,525	2,416	2,199	2,362	2,365	2,266	2,355	2,037	2,446	2,105	
Month	78,957	67,592	78,275	72,480	68,169	70,860	73,315	70,246	70,650	63,147	73,380	65,255	852,326
Virgil—													
Daily average	3,765	3,401	3,621	3,494	2,759	3,390	3,532	3,753	3,880	3,742	4,372	3,860	
Month	116,715	95,228	112,251	104,820	85,529	101,700	109,492	116,343	116,400	116,002	131,160	119,660	1,325,300
Thrall-Burkett—													
Daily average	771	781	783	791	749	755	757	712	699	631	747	644	
Month	23,901	21,868	24,273	23,730	23,219	22,650	23,467	22,072	20,970	19,561	22,410	19,964	268,085
Seeley—													
Daily average	3,746	3,546	3,646	3,494	2,977	3,362	3,532	3,497	3,423	3,192	3,907	3,310	
Month	116,126	99,288	113,026	104,820	92,287	100,860	109,492	108,407	102,690	98,952	117,210	102,610	1,265,768
Polhamus—													
Daily average	561	515	523	463	383	390	505	460	487	412	594	472	
Month	17,391	14,420	16,213	13,890	11,873	11,700	15,655	14,260	14,610	12,772	17,820	14,632	175,236
Miscellaneous—													
Daily average	558	478	473	458	388	407	452	485	486	466	530	471	
Month	17,298	13,384	14,663	13,740	12,028	12,210	14,012	15,035	14,580	14,446	15,900	14,601	171,897
COWLEY COUNTY:													
Winfield-New Salem—													
Daily average	3,833	3,279	3,338	3,089	2,791	2,872	3,632	3,510	3,214	2,696	2,914	2,702	
Month	118,823	91,812	103,478	92,670	86,521	86,160	112,592	108,810	96,420	83,576	87,420	83,762	1,152,044
Miscellaneous—													
Daily average	2,875	2,771	2,786	2,837	2,416	2,650	2,979	2,750	2,945	2,369	2,928	2,412	
Month	89,125	77,588	86,366	85,110	74,896	79,500	92,349	85,250	88,350	73,439	87,840	74,772	994,585
McPHERSON COUNTY:													
Ritz-Canton—													
Daily average	15,572	20,198	22,633	21,663	18,591	17,362	21,328	19,996	19,631	14,705	13,542	12,839	
Month	482,732	565,544	701,623	649,890	576,321	520,860	661,168	619,876	588,930	455,855	406,260	398,009	6,627,068
Voshell—													
Daily average	5,246	7,721	10,778	7,744	5,680	5,885	6,904	6,374	5,842	5,927	7,654	8,688	
Month	162,626	216,188	334,118	232,320	176,080	176,550	214,024	197,594	175,260	183,737	229,620	269,328	2,567,445
Johnson—													
Daily average	669	1,575	2,700	2,294	2,612	1,988	1,999	1,816	1,664	1,239	1,477	1,241	
Month	20,739	44,100	83,700	68,820	62,372	59,640	61,969	56,296	49,920	38,409	44,310	38,471	628,746
Nikkel—													
Daily average	1,251	2,989	5,944	7,638	7,921	8,227	8,930	7,506	3,742	2,757	2,568	3,438	
Month	38,781	83,692	184,264	229,140	245,551	246,810	276,830	232,686	112,260	85,467	77,040	106,578	1,919,099
Miscellaneous—													
Daily average	49	66	53	70	56	55	64	63	62	63	45	49	
Month	1,519	1,848	1,643	2,100	1,736	1,650	1,984	1,953	1,860	1,953	1,350	1,519	21,115
OTHER COUNTIES:													
Rooks—													
Daily average	83	81	33	28	13	20	29	22	21	20	35	30	
Month	2,573	2,268	1,023	840	403	600	899	682	630	620	1,050	930	12,518
Sumner—													
Daily average	3,876	4,145	3,755	3,609	3,641	3,473	3,534	3,425	3,474	3,508	3,511	3,483	
Month	120,156	116,060	116,405	108,270	112,871	104,190	109,554	106,175	104,220	108,748	105,330	107,973	1,319,952
Rice—													
Daily average	2,756	2,167	3,174	3,649	3,376	3,424	6,282	6,788	8,036	7,559	8,349	7,858	
Month	85,436	60,676	98,391	109,470	104,656	102,720	194,742	210,428	241,080	234,329	250,470	243,598	1,935,996

(Continued on Next Page)

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giving that field a total of 11 completed wells with a daily potential of 4,685 bbls. This field was discovered in 1932 but it was not developed until the following year. Production has been found in the Siliceous lime and in the Kansas City-Lansing lime. This is the most westerly area in Kansas producing from the Siliceous lime and its possibilities and size of the producing area are not definitely known at this time.

A new producing area opened in Butler County, one of the oldest producing counties in Kanses, when a wildcat test, Hartman Oil Co.'s No. 1 McCann, in Section 7-20-3, found oil in the chat at 2,791-2,801 feet. The well was treated with 1,000 gallons of acid and it made 10 bbls. of oil and 5 bbls. of water per hour.

Nikkell Pool Was Busy

The Nikkell area in the northwestern part of Harvey County and extending over into the southern part of McPherson County was active and created the greatest interest the first half of the year. In January the development of the Nikkell area was in full progress as the result of the Derby Oil Co. having been granted a temporary injunction against the Corporation Commission, after that body had ordered all wells in the Nikkell Pool shut in without notice on December 31, 1932. The court's ruling set aside the commission's order and at that time there were four producing wells in the field and several others were nearing completion. At the end of 1933 there were 28 wells completed in the area.

Production in Nikkell area was extended and defined by wells during the year. The northern extension well was Mid-Kansas Oil & Gas Co.'s No. 1 J. J. Schmidt, NE cor. SE NW Section 33-21-3w, McPherson County, which was completed with an initial production of 85 bbls. an hour from Hunton lime at 3,467-77 feet. The southern extension was more than a mile by a well completed in February, by Lee and others, No. 1 Wall, NW cor. SW Section 2-22-3w, Harvey County, which started flowing at the rate of 20 bbls. an hour from the Hunton lime at 3,495-3,507 feet. The producing area was defined by a dry hole on the east edge by Lario Oil & Gas Co., No. 1 Krehbiel, SW cor. Section 27-21-3w, McPherson County. The Hunton lime was dry at 3,472-3,503 feet and the Wilcox sand at 3,850-53 feet carried water.

Development of the field continued steady during the year until 28 wells had been completed up to the end of the year, with a daily average potential of 26,350 bbls. Acid treatment of wells in the Nikkell Pool helped to increase their production. One well reported a gain of 300 per cent after the treatment.

The Ritz-Canton Field in McPherson County continued to be one of the active areas in the State during the year 1933, where a total of 216 wells are now producing. The Viola lime production was extended in February by Tom Palmer and others' No. 1 B. Winn, NE cor. NW SE Section 7-20-2w. The well was completed for 20 bbls. a day. It extended production in the south end of the field to the west.

In Ellsworth County

In Ellsworth County the Breford Pool was developed by the completion of three additional wells. The discovery well was completed in 1932, but it remained shut in during the entire year of 1932. The discovery well was Slick, Pryor & Lockhart's No. 1 Breford, SW cor. NW Section 7-17-10w, which made on its initial gauge 720 bbls. of oil in 10 hours from the Kansas City-Lansing lime at 3,140-52 feet. The three offsets were completed and in December the four wells had a potential of 1,149 bbls. daily.

Cowley County

In the Winfield Pool in Cowley County some good sized wells were completed. In May, Sinclair Prairie Oil Co.'s No. 2 Dibbens, on Lot 5, Block 12, in Section 22-32-4, swabbed 885 bbls. of oil in 24 hours from the Siliceous lime at 3,251-62 feet. The same company also completed another well on the same lease, their No. 6 Dibbens, located 970 feet south and 1,295 feet west of the NE cor. Section 22-32-4, which swabbed 1,225 bbls. of oil in 24 hours from the Siliceous lime at 3,246-57 feet. This well was one of the largest wells found on the Winfield townsite during the year 1933.

The older areas in the State showed the usual number of completions with the shallow sands being tested. In Butler County, the Gypsy Oil Co. in December started a test offsetting the famous Shumway gusher in Section 11-26-4, Towanda Field, which produced 2,250,000 bbls. of oil from the summer of 1917 until about eight months later in 1918. The new well was drilled to test the shallow Lansing lime. It is No. 19 Ladd, NE cor. SW Section 11-26-4. This lease was acquired in a deal with Phillips Petroleum Co. Lansing lime in wells has responded to acid treatment and as this pay is found around 1,650 feet it was looked upon as worthy of exploration.

Surprising Results in Eastern Fields in 1933

The completion of wells of rich flush production in the old West Virginia area featured the development work in the Eastern or Pennsylvania Grade oil fields in 1933. The best wells completed in West Virginia brought the averge initial production per well in the State up to 90 bbls. per day, while the average for the whole Pennsylvania Grade area was only 36.3 bbls.

The Washington County, Pennsylvania, Field, also came to the front late in the year with a 250-bbl. well in an old producing district.

The Bradford Field in northern Pennsylvania and southern New York continued to be the most active in the division in operations completed.

EASTERN FIELDS
Summary of Wells Completed in 1933

	Comp.	Prod.	Dry	Gas
Allegany	93	508	0	0
Bradford	836	1,110	0	0
Middle Field	47	101	1	0
N. Y.-Penn. gas field	64	0	28	36
Venango-Clarion	63	62	6	16
Butler-Armstrong	28	66	3	6
S. W. Penna	55	605	10	23
S. E. Ohio	178	1,653	51	43
West Virginia	286	6,200	59	160
Total 1933	1,650	10,305	158	284
Total 1932	1,560	5,906	203	270
Difference	90	4,399	45	14

Kansas (Continued)

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
Russell—													
Daily average	2,167	1,931	2,118	2,252	1,849	2,152	2,326	2,568	2,699	3,717	6,208	5,058	
Month	67,177	54,068	65,658	67,560	57,319	64,560	72,106	79,608	80,970	115,227	186,240	156,798	1,067,291
Reno—													
Daily average	1,784	1,669	1,697	1,720	1,449	1,537	2,218	1,421	1,944	1,417	1,489	2,131	
Month	55,304	46,732	52,607	51,600	44,919	46,110	68,758	44,051	58,320	43,927	44,670	66,061	623,059
Harvey—													
Daily average	1,631	2,989	5,918	7,331	7,076	7,850	15,339	13,713	11,795	8,067	8,715	8,438	
Month	50,561	83,692	183,458	219,930	219,356	235,500	475,509	425,103	353,850	250,077	261,450	261,578	3,020,064
Chautauqua—													
Daily average	1,614	1,611	1,596	1,599	1,594	1,591	1,544	1,611	1,636	1,560	1,596	1,491	
Month	50,034	45,108	49,476	47,970	49,414	47,730	47,864	49,941	49,080	48,360	47,880	46,221	579,078
Elk—													
Daily average	912	903	894	858	862	888	747	847	922	1,158	1,222	1,097	
Month	28,272	25,284	27,714	25,740	26,722	26,640	23,157	26,257	27,660	35,898	36,660	34,007	344,011
Wilson—													
Daily average	167	165	164	163	161	162	164	161	165	166	170	164	
Month	5,177	4,620	5,084	4,890	4,991	4,860	5,084	4,991	4,950	5,146	5,100	5,084	59,977
Montgomery—													
Daily average	1,200	1,193	1,105	1,187	1,179	1,169	1,187	1,079	1,171	1,068	1,007	1,011	
Month	37,200	33,404	34,255	35,610	36,549	35,070	36,797	33,449	35,130	33,108	30,210	31,341	412,123
Edwards—													
Daily average	28	19	20	20	14	.....	22	16	.....	69	83	72	
Month	868	532	620	600	434	.....	682	496	.....	2,139	2,490	2,232	11,093
Ellis—													
Daily average	671	684	808	691	398	408	994	852	810	427	407	262	
Month	20,801	19,152	25,048	20,730	12,338	12,240	30,814	26,412	24,300	13,237	12,210	8,122	225,404
Barton—													
Daily average	68	155	196	366	601	391	291	415	416	411	595	798	
Month	2,108	4,340	6,063	10,980	18,631	11,730	9,021	12,865	12,480	12,741	17,850	24,738	143,547
Kingman—													
Daily average	42	8	326	364	271	285	448	408	730	390	908	1,276	
Month	1,302	224	10,106	10,920	8,401	8,550	13,888	12,648	21,900	12,090	27,240	39,556	166,825
Stafford—													
Daily average	132	214	200	286	156	.....	558	489	719	847	1,108	927	
Month	4,092	5,992	6,201	8,580	4,836	.....	17,298	15,159	21,570	26,257	33,240	28,737	171,962
Allen—													
Daily average	495	489	529	531	518	520	519	511	517	509	506	494	
Month	15,345	13,692	16,399	15,930	16,058	15,600	16,089	15,841	15,510	15,779	15,180	15,314	186,737
Neosho—													
Daily average	439	433	478	483	474	469	474	473	468	454	477	466	
Month	13,609	12,124	14,818	14,490	14,694	14,070	14,694	14,663	14,040	14,074	14,310	14,446	170,032
Lyon—													
Daily average	273	276	284	255	199	242	266	280	316	248	255	239	
Month	8,463	7,728	8,804	7,650	6,169	7,260	8,246	8,680	9,480	7,688	7,650	7,409	95,227
Miami—													
Daily average	1,191	1,178	1,193	1,197	1,188	1,172	1,194	1,182	1,191	965	819	808	
Month	36,921	32,984	36,983	35,910	36,828	35,160	37,014	36,642	35,730	29,915	24,570	25,048	403,705
Franklin—													
Daily average	279	281	279	276	279	274	275	269	275	268	264	253	
Month	8,649	7,868	8,649	8,280	8,649	8,220	8,525	8,339	8,250	8,308	7,920	7,843	99,500
Labette—													
Daily average	22	23	.....	21	21	22	21	20	20	15	15	14	
Month	682	644	.....	630	651	660	651	620	600	465	450	434	6,487
Bourbon—													
Daily average	35	34	29	51	47	48	29	38	57	95	86	87	
Month	1,085	952	899	1,530	1,457	1,440	899	1,178	1,710	2,945	2,580	2,697	19,372
Linn—													
Daily average	106	105	111	113	103	108	112	107	112	105	101	104	
Month	3,286	2,940	3,441	3,360	3,192	3,240	3,472	3,317	3,360	3,255	3,030	3,224	39,118
Anderson—													
Daily average	870	873	860	857	861	862	899	887	889	914	1,119	932	
Month	26,970	24,444	26,660	25,710	26,691	25,860	27,869	27,497	26,670	28,334	33,570	28,892	329,167
Ellsworth—													
Daily average	2,474	1,871	2,224	1,749	1,007	1,671	4,082	4,670	4,345	3,771	4,979	3,853	
Month	76,694	52,388	68,942	52,470	31,217	50,130	126,542	144,770	130,350	116,901	149,370	119,443	1,119,217
Woodson—Miscellaneous—													
Daily average	39	40	39	38	37	37	38	38	36	13	21	22	
Month	1,209	1,120	1,209	1,140	1,147	1,110	1,178	1,178	1,080	403	630	682	12,086
Daily average	92,622	100,054	116,276	116,433	105,713	107,035	131,230	126,074	124,300	106,053	119,980	111,475	113,166
Total 1933	2,871,282	2,801,512	3,604,539	3,492,990	3,277,103	3,210,150	4,068,130	3,908,294	3,729,000	3,287,643	3,599,400	3,455,725	41,305,768
Total 1932	3,170,587	2,838,839	3,042,929	2,974,080	3,038,930	2,837,179	2,906,808	3,046,959	2,970,750	2,892,486	2,841,780	2,777,879	35,339,206
Total 1931	3,432,475	3,341,016	3,498,598	3,281,880	3,341,366	3,175,440	3,089,832	3,141,323	3,147,030	3,177,066	3,121,670	3,198,642	38,956,328
Total 1930	3,273,197	2,965,704	3,504,395	3,734,253	3,978,385	3,765,060	3,541,409	3,491,530	3,405,510	3,571,913	3,459,330	3,432,661	42,123,347
Total 1929	2,861,641	2,557,968	2,951,076	3,112,740	3,665,099	3,636,150	3,867,157	3,816,555	3,780,690	3,429,468	3,430,560	3,549,066	40,658,170
Total 1928	3,319,325	3,079,887	3,379,031	3,412,360	3,367,809	3,202,050	3,171,548	3,147,058	3,047,250	3,058,460	2,977,800	2,988,400	38,150,878
Total 1927	3,769,879	3,352,076	3,675,143	3,516,930	3,704,314	3,437,580	3,454,082	3,442,240	3,341,340	3,509,169	3,313,650	3,427,174	41,943,577
Total 1926	3,250,536	2,877,812	3,334,887	3,330,120	3,516,040	3,366,450	3,582,267	3,681,436	3,450,060	3,714,637	3,593,490	3,654,166	41,346,511

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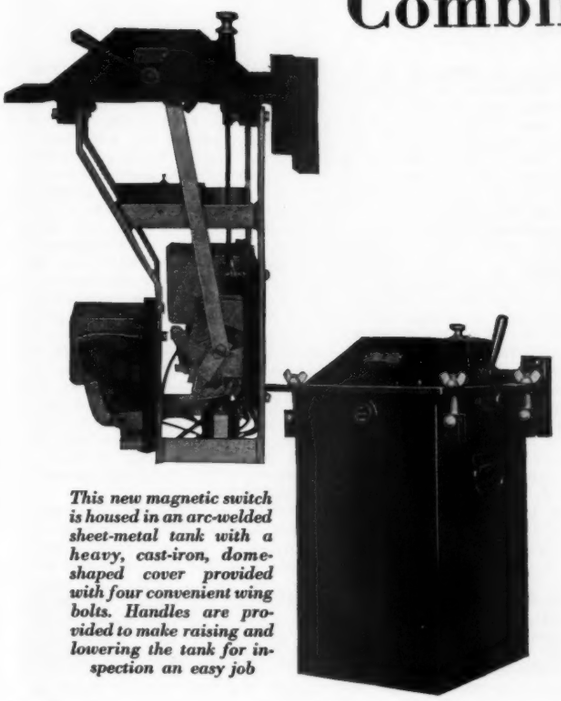

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North Louisiana-Arkansas Division Shows No New Important Pools From Work in 1933

By J. R. CRUMPTON
Staff Correspondent, Louisiana-Arkansas

Drilling operations in this division, as reflected by the completion in 1933, were about on a par with the previous year. Initial production of both oil and gas showed a sharp decline due to the natural depletion of the few active areas. On the other hand, wildcatting for new producing areas continued active, and with a tendency on the part of the operators to make a closer study of surface and subsurface structural conditions before and after drilling began. Much geophysical work has been done in the North Louisiana district, resulting in several geophysical high blocks being mapped out. These structures have been outlined by magnetometric, torsion balance and seismograph surveys. As predicted in these columns for several years, deeper drilling to the Trinity series, particularly in areas adjacent to or already producing from upper horizons, has shown increased activity.

Converse Most Active Field

The Converse Field in Sabine Parish has been the most active spot in the division, having been developed during the year from the wildcat stage to a proven field, the boundaries of which are not yet defined. This area, about 12 miles northwest of the western part of the Zwolle Field, was first prospected for deeper production below the chalk, but with the successful use of acid in this formation in Zwolle, it was used with even greater success in Converse. The field has proven to be more consistent than the Zwolle area with very few dry holes from the 1,900-foot level in chalk rock. To date there are about 30 producers in the new field with a total average daily production of 1,000 bbls. The wells are inexpensive to drill and to operate, most of them being pumped with small gasoline units. There are over 30 active rigs running at present, and although the field is not expected to reach large productive figures, it has proven a boon to small operators in this district during the past year.

Zwolle Field

Most of the drilling activity in the Zwolle Field was on the eastern flank, north of the town of Many. Several good wells were completed in this area, centering around Section 7-7-11, initial production ranging from 500 to 1,100 bbls. daily. The daily average runs from this field held up remarkably well during the past year. The 172 wells now producing averaged from 6,500 to 7,500 bbls. Acid pressure has been used to some extent in the Zwolle Field, but the majority of the best producers came in after encountering a crevice in the chalk as has been the history of this field from the date of its discovery. One deep test northwest of Zwolle, between that area and Converse, which was started about two years ago, was temporarily abandoned early in 1934 at 7,154 feet. The test was R. L. Gay, trustee's No. 2 Long-Bell Lumber Co., in Section 10-8-13.

Testing Geophysical Highs

Three geophysical high wildcat blocks claimed the attention of operators in North Louisiana during the latter part of 1933. Two of these blocks, one in Bossier and another in Webster Parish, were assembled and worked out by the Gulf Refining Co. In the latter, after running a torsion balance and seismograph survey of the area, a core test was drilled in the NW cor. Section 20-19-8. Considerable difficulty was encountered by losing returns during the drilling process, and the well was abandoned after penetrating 10 feet of rock salt at a total depth of 1,922 feet. This immediate area has had a good surface structure report since 1919, after the discovery of the Homer Field, 10 miles to the northeast. The large gasoline core rig used on the Webster test was moved on a block, which had been similarly worked out, about 7 miles west of Plain Dealing in Bossier Parish. One test is under way on this structure at the present writing, listed as the Gulf Refining Co.'s No. 1 Luther Ford, in Section 8-22-13. Another hot geophysical block, known as the "Dubberly High," is located about 3 miles south and east of the town of Sibley, Webster Parish. William M. Barrett, Inc., carried out the magnetometric surveys, first to determine the structure of the top of the Nacatoch group, and afterwards using the base of the Annona chalk for a reference plane. Two wells completed to date on the block were failures, but gave important subsurface information which coincided with the magnetometric surveys and helped materially in making locations for future tests. The first test, J. P. Evans' No. 1 Burson, Section 27-18-9, failed to pay off in the Blossom sand at 2,468 feet, the expected producing horizon, and the hole was deepened to the Woodbine where it was abandoned in salt water at 3,515 feet. Both sands, though, had good shows of gas with slight shows of oil. The second test, same operator's No. 1 Miller, Section 29-18-9, 1½ miles west of the Burson well, checked 75 feet lower and was abandoned in the Blossom sand at 2,517 feet.

The Trinity Horizon

As stated in the opening paragraph, wildcat wells drilled to the Trinity horizons have been more numerous during the past year, but with practically barren results. Most of these tests were drilled to extend production in known Trinity gas fields, or in areas already explored for the upper pays and which held indications of producing from the lower horizons. The Sugar Creek Field in Claiborne Parish, producer of highly saturated gas from Oolitic lime of the Glen Rose around the 4,400-foot level, registered two failures of edge wells. The United Gas Public Service Co.'s No. 1 Durrett, Section 31-20-5, gauged only 5,000,000 feet of gas from 4,328 feet after plugging back from salt water at a lower depth. The same company's No. 2 Durrett, Section 5-19-5, was dry at the pay level and was abandoned in salt water at 4,663 feet. Gas production has been pretty well defined in all directions except north and northeast on the immediate structure. The United Gas drilled a wildcat on a separate structure in the Lisbon area, its No. 1 Meadows, in Section 13-21-5. The test, located about 10 miles north and east of Sugar Creek, encountered only slight showings of gas with salt water at different depths from 4,390 feet to the total abandonment depth of 6,710 feet.

The eastern flank of the Haynesville in the northern part of Claiborne Parish continues to get a persistent play for Trinity pay. The third such test for this year, and the fourth for that immediate vicinity, is now coring in the upper Trinity below the Glen Rose. Two previous tests in 1933, one within the Blossom producing lines of the field and another about 3 miles east, were both dusters. On the eastern flank of the field, Haynesville Partnership's No. 1 J. L. Garrett, Section 24-23-8, was abandoned in salt water at 4,707 feet, and the outside test, drilled by the United Gas Public Service Co., was dry at 4,500 feet. The first deep well in this area, drilled about three years ago 1 mile east of the Garrett test, had a good show of gas and made considerable oil from a total depth of 4,521 feet. The present well is more than a mile to the north

North Louisiana

Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
CADDO (light):													
Daily average	4,887	4,965	5,114	5,024	4,977	4,742	4,626	4,590	4,571	4,215	4,436	4,382	
Month	151,497	139,020	158,534	150,720	154,287	142,260	143,406	142,290	137,130	130,665	133,080	135,842	1,718,731
CADDO (heavy):													
Daily average	1,775	1,780	1,742	1,653	1,563	1,573	1,499	1,485	1,483	1,347	1,342	1,326	
Month	55,025	49,840	54,002	49,590	48,453	47,190	46,469	46,035	44,490	41,757	40,260	41,106	564,217
CONVERSE:													
Daily average	.....	.....	.....	.....	.....	.....	.....	285	453	735	791	788	
Month	.....	.....	.....	.....	.....	.....	.....	8,835	13,590	22,785	23,730	24,428	93,368
COTTON VALLEY:													
Daily average	665	636	629	625	566	555	501	477	445	467	485	472	
Month	20,615	17,808	19,499	18,750	17,546	16,650	15,531	14,787	13,350	14,477	14,550	14,632	198,195
DeSOTO-RED RIVER:													
Daily average	1,764	1,727	1,775	1,742	1,655	1,636	1,602	1,579	1,582	1,517	1,510	1,518	
Month	54,684	48,356	55,025	52,260	51,305	49,080	49,662	48,949	47,460	47,027	45,300	47,058	596,166
ELM GROVE:													
Daily average	360	349	348	549	327	351	347	311	321	350	356	379	
Month	11,160	9,772	10,788	16,470	10,137	10,530	10,757	9,641	9,630	11,780	11,580	11,749	133,994
HAYNESVILLE:													
Daily average	3,866	3,922	3,927	3,957	3,938	3,926	3,860	3,738	3,863	3,842	3,812	3,802	
Month	119,846	109,816	121,737	118,710	122,078	117,780	119,660	115,878	115,890	119,102	114,360	117,862	1,412,719
HOLLY:													
Daily average	226	226	217	215	210	203	207	204	201	199	195	188	
Month	7,006	6,328	6,727	6,450	6,510	6,090	6,417	6,324	6,030	6,169	5,550	5,828	75,429
HOMER:													
Daily average	2,754	2,731	2,724	2,703	2,692	2,694	2,660	2,680	2,694	2,682	2,599	2,607	
Month	85,374	76,468	84,444	81,090	83,452	80,820	82,460	83,080	80,820	83,142	77,970	80,817	979,937
PLEASANT HILL:													
Daily average	288	255	293	284	253	249	255	205	248	241	226	230	
Month	8,928	7,140	9,083	8,520	7,843	7,470	7,905	6,355	7,440	7,471	6,780	7,130	92,065
SAREPTA-CARTERSVILLE:													
Daily average	722	676	704	765	760	789	781	792	787	806	791	784	
Month	22,382	18,928	21,824	22,950	23,560	23,670	24,211	24,552	23,610	24,986	23,730	24,304	278,707
URANIA:													
Daily average	3,309	3,302	2,655	1,470	1,453	1,875	2,015	2,560	2,608	2,820	3,073	2,976	
Month	102,579	92,456	82,305	44,100	45,043	56,250	62,465	79,360	78,240	87,420	92,190	92,256	914,664
ZWOLLE:													
Daily average	9,027	9,556	11,524	11,135	8,360	6,716	6,940	7,455	6,542	6,427	6,231	6,244	
Month	297,837	267,568	357,244	334,050	259,160	201,480	215,140	231,105	196,260	199,237	186,930	193,564	2,921,575
Daily average	29,643	30,125	31,652	30,122	26,754	25,309	25,293	26,361	25,795	25,678	25,867	25,696	27,342
Total 1933	918,933	843,500	981,212	903,660	829,374	759,270	784,083	817,191	773,940	796,018	776,010	796,576	9,979,767
Total 1932	837,295	824,412	866,634	869,580	915,802	895,440	925,629	910,191	898,740	927,613	891,870	908,765	10,731,973
Total 1931	1,274,255	1,229,788	1,247,130	1,170,330	1,219,106	1,086,780	1,047,242	941,346	886,680	899,930	878,010	856,871	12,737,468
Total 1930	1,163,554	1,138,396	1,271,465	1,258,500	1,226,701	1,200,630	1,253,113	1,280,393	1,194,060	1,296,202	1,322,400	1,338,549	14,943,964
Total 1929	1,114,171	990,024	1,109,986	1,069,200	1,097,121	1,068,960	1,110,172	1,125,486	1,037,250	1,224,717	1,147,200	1,196,879	13,291,166
Total 1928	1,369,146	1,313,555	1,369,115	1,411,890	1,383,034	1,272,040	1,306,433	1,246,200	1,177,920	1,196,669	1,163,400	1,155,091	15,367,493
Total 1927	1,589,122	1,474,004	1,589,711	1,511,250	1,469,710	1,435,020	1,751,376	1,748,067	1,567,320	1,591,347	1,506,210	1,469,950	18,703,087
Total 1926	1,343,788	1,288,000	1,511,219	1,556,580	1,830,705	1,809,180	1,780,175	1,761,513	1,703,190	1,801,224	1,696,411	1,689,644	19,771,640

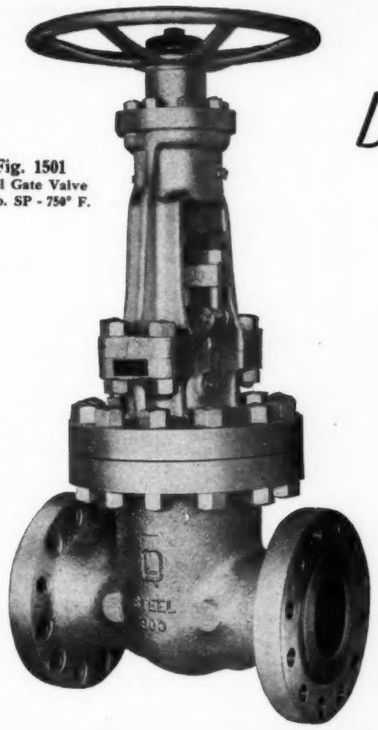

Fig. 1501
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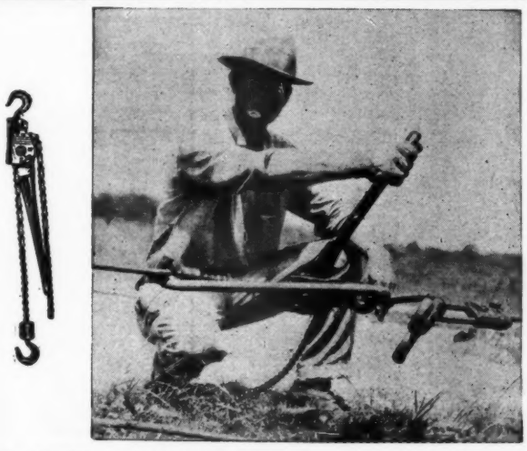

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and is checking very closely with the first well drilled.

Deep Test in Bossier Parish

H. I. Morgan's No. 2 Smith, Section 22-19-11, located on a structural high south of the old Bellevue shallow field in Bossier Parish, was the most interesting deep test drilled in the North Louisiana district. Gas production is encountered in this area from Oolitic lime around 1,750 feet and the test was carried to 6,147 feet before abandoned as dry. Although a few tests have been drilled in this district to a greater depth from a footage standpoint, none have penetrated, structurally, as far into the lower horizons. Another Bossier Parish test in the Sligo gas field proved a riddle to its operators. The United Gas Public Service Co.'s No. 1 Skannell Unit, Section 13-17-12, while drilling below known producing sands, including the Nacatoch, Blossom and Woodbine, had a blowout estimated at 75,000,000 feet of gas daily, from 3,220 feet. After killing the flow, casing was set and upon test the well failed to develop any gas pressure but made about 75 bbls. of high gravity oil daily. The gas was thought to have been cut off with the casing, but it definitely opens up another producing horizon in that field with a high potential flow. One other deep test has been drilled in that area, the Triangle Drilling Co.'s No. 1 Jeter, Section 23-17-12, about one-half mile southwest of the present test. This well was completed as a good gasser from the upper Trinity at 4,276 feet. The gas in the Skannell Unit well is thought to be coming from the upper lower Cretaceous series, probably the Washita or Fredericksburg.

Gas Fields Fairly Active

The gas fields of North Louisiana were only fairly active during the past year, 48 completions being the total for the district. Ouachita Parish in the old Monroe Field led in number of completions with 16, but Caddo Parish registered a greater initial daily production with 128,702,000 feet from 10 wells. The Rodessa deep gas field in northwestern Caddo furnished a number of big initial producers, but the newer Blanchard Field led in numbers and consistency. The latter now has a total of seven wells averaging around 12,000,000 feet open flow from the 2,800-foot level. The Richland Field, the leading district during the last few years in new operations, was practically inactive. However, the use of acid in this field as well as the Monroe Field has materially increased the flow of old wells beginning to decline in pressure.

Arkansas

This district experienced only desultory wildcatting in widely scattered areas which were shut down a great part of the time for various reasons. Only 477 bbls., daily, of new production was reported for the State, all in Miller County, except two small producers, one each in Columbia and Ouachita Counties. Union County listed 12 completions, all of which were dry holes, but several of them have been carried on the records as temporarily abandoned prior to 1933.

Recently, the Miller County Field has shown the activity expected in a new oil area. Although discouraged by dry holes on all sides of limited production after discovery of the field two years ago, several operators have started new drilling during the past 90 days. Indications are that a number of new producers will be added to that area in the near future. The field at the present time has a total of five producers with a combined daily average production of 850 bbls.

Mississippi

The total number of completions reported from this State declined about 20 per cent from the year before, but this was due to less drilling in the proven Jackson gas field in Hinds and Rankin Counties. The figures show that there was more intelligent wildcatting in a greater number of counties, and several large blocks have been or are being checked with core tests. The Hinds and Rankin gas area reported 16 gas wells with a total daily flow of 535,000,000 feet.

A number of wildcats, drilled deeper than any heretofore in that State, were completed. In Covington County, the Eastman-Gardiner's No. 1 Bank of Deming, Section 26-8-15, has the honor of being the deepest test drilled in this division. It was abandoned as dry at a total depth of 8,002 feet. The same interest's No. 1 fee, Section 29-9-16, Covington County, was a duster at 6,683 feet. In Jones County, the Snow Black Petroleum Co.'s No. 1 Watson estate, Section 24-7-13, was abandoned as dry at 4,500 feet. In Escambia County, Alabama, the Escambia Oil Co.'s No. 1 State Line Lumber Co. was drilled to a total depth of 6,025 feet before abandoned as dry.

East Texas, Border Counties

With the exception of a small area in Panola County, about 7 miles northeast of Carthage, the Border Counties were practically inactive. This district, known as the Tacoma Field, has a total of three oil wells with a combined daily production of 65 bbls. The pay sand is topped in this area around 2,075 feet. A few wildcats are drilling in Harrison and Marion Counties, but Shelby County, the most active spot for the past few years, has practically passed out of the picture.

NORTH LOUISIANA
Completions by Parishes in 1933

	Comp.	Prod.	Dry	*Gas
Allen	1	0	1	0
Avoyelles	2	0	2	0
Beauregard	3	0	3	0
Bienville	5	0	5	0
Bossier	14	78	7	6
Caddo	32	58	19	10
Caldwell	1	0	1	0
Catahoula	4	0	4	0
Claiborne	7	0	5	2
Concordia	1	0	1	0
DeSoto	20	0	19	1
East Carroll	1	0	1	0
Grant	2	0	2	0
LaSalle	1	50	0	0
Morehouse	9	0	3	6
Natchitoches	5	0	5	0
Ouachita	17	0	1	16
Rapides	1	0	1	0
Red River	3	40	1	0
Richland	2	0	0	2
Sabine	189	19,569	93	1
Union	8	0	4	4
Vernon	5	0	5	0
Webster	8	0	8	0
West Carroll	1	0	1	0
Winn	1	0	1	0
Total 1933	343	19,795	193	48
Total 1932	327	37,397	177	38
Difference	16	17,602	16	10

*Gas production: Bossier, 46,935,000 feet; Caddo, 128,702,000 feet; Claiborne, 45,000,000 feet; DeSoto, 3,500,000 feet; Morehouse, 36,000,000 feet; Ouachita, 54,150,000 feet; Richland, 9,000,000 feet; Sabine, 15,000,000 feet; Union, 25,300,000 feet; total, 363,587,000 feet.

Completions by Months

	Comp.	Prod.	Dry	Gas
January	21	2,220	10	3
February	18	3,990	11	1
March	23	543	20	1
April	20	1,330	8	1
May	37	1,310	26	3
June	24	90	17	4
July	26	500	17	5
August	40	3,040	23	7
September	25	912	13	8
October	32	503	16	7
November	39	2,744	20	5
December	33	2,613	12	3
Total	343	19,795	193	48

MISSISSIPPI
Completions by Counties in 1933

	Comp.	Prod.	Dry	*Gas
Amite	1	0	1	0
Boliver	1	0	1	0
Clarke	1	0	1	0
Covington	3	0	3	0
George	1	0	1	0
Hinds	11	0	3	8
Jackson	1	0	1	0
Jasper	1	0	1	0
Jones	1	0	1	0
Lamar	1	0	1	0
Monroe	1	0	1	0
Newton	1	0	1	0
Rankin	11	150	2	8
Sunflower	4	0	4	0
Webster	2	0	2	0
Winston	1	0	1	0
Total 1933	42	150	25	16
Total 1932	53	500	14	38
Difference	11	350	11	22

*Gas production: Hinds, 206,200,000 feet; Rankin, 328,800,000 feet; total, 535,000,000 feet.

Completions by Months

	Comp.	Prod.	Dry	Gas
January	1	0	0	1
February	6	150	3	2
March	1	0	1	0
April	3	0	3	0
May	3	0	1	2
June	4	0	3	1
July	4	0	2	2
August	2	0	1	1
September	4	0	2	2
October	8	0	5	3
November	3	0	2	1
December	3	0	2	1
Total	42	150	25	16

ARKANSAS
Completions by Counties in 1933

	Comp.	Prod.	Dry	Gas
Cleburne	1	0	1	0
Columbia	2	12	1	0
De Sha	1	0	1	0
Lafayette	5	0	5	0
Lincoln	2	0	2	0
Little River	3	0	3	0
Miller	17	395	13	0
Ouachita	2	70	1	0
St. Francis	1	0	1	0
Sevier	1	0	1	0
Union	12	0	12	0
Woodruff	1	0	1	0
Total 1933	48	477	42	0
Total 1932	50	712	45	1
Difference	2	235	3	0

Completions by Months

	Comp.	Prod.	Dry	Gas
January	7	200	6	0
February	4	0	4	0
March	1	45	0	0
April	3	0	3	0
May	6	150	4	0
June	6	0	6	0
July	8	0	8	0
August	5	0	5	0
September	1	0	1	0
October	3	0	3	0
November	1	0	1	0
December	3	82	1	6
Total	48	477	42	0

ALABAMA
Completions by Counties in 1933

	Comp.	Prod.	Dry	Gas
Cullman	1	0	1	0
Escambia	1	0	1	0
Washington	1	0	1	0
Total 1933	3	0	3	0
Total 1932	3	0	3	0
Difference	0	0	0	0

Completions by Months

	Comp.	Prod.	Dry	Gas
January	0	0	0	0
February	0	0	0	0
March	0	0	0	0
April	0	0	0	0
May	0	0	0	0
June	1	0	1	0
July	0	0	0	0
August	0	0	0	0
September	1	0	1	0
October	1	0	1	0
November	0	0	0	0
December	0	0	0	0
Total	3	0	3	0

EAST TEXAS (BORDER COUNTIES)
Completions by Counties in 1933

	Comp.	Prod.	Dry	Gas
Bowie	3	0	3	0
Cass	3	0	3	0
Harrison	3	0	3	0
Marion	4	0	4	0
Panola	5	65	2	0
Shelby	7	0	7	0
Total 1933	25	65	22	0
Total 1932	41	10	33	7
Difference	16	55	11	7

Completions by Months

	Comp.	Prod.	Dry	Gas
January	0	0	0	0
February	6	0	6	0
March	0	0	0	0
April	1	0	1	0
May	4	0	4	0
June	0	0	0	0
July	1	25	0	0
August	4	0	4	0
September	3	0	3	0
October	0	0	0	0
November	3	0	3	0
December	3	40	1	0
Total	25	65	22	0

Arkansas
Daily Average and Monthly Production in 1933

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	July (bbls.)	August (bbls.)	September (bbls.)	October (bbls.)	November (bbls.)	December (bbls.)	Ttl. 1933 (bbls.)
CHAMPAGNOLLE:													
Daily average	1,527	1,491	1,445	1,363	1,354	1,370	1,357	1,325	1,290	1,287	1,292	1,277	
Month	47,337	41,748	44,795	40,890	41,974	41,100	42,067	41,075	38 700	39,897	38,760	39,587	497,940
EL DORADO:													
Daily average	2,644	2,648	2,640	2,698	2,609	2,605	2,612	2,614	2,567	2,571	2,583	2,573	
Month	81,964	74,144	81,840	80,940	80, 879	78,150	80,972	81,034	77,100	79,701	77,490	79,763	953,887
LISBON:													
Daily average	447	443	412	405	401	396	397	401	404	414	413	420	
Month	13,857	12,404	12,772	12,150	12,431	11,880	12,307	12,431	12,120	12,834	12,540	13,020	150,746
MILLER COUNTY:													
Daily average	360	88	135	61	65	62	42	36	342	531	737	689	
Month	11,160	2,464	4,185	1,830	2,015	1,860	1,302	1,116	10,260	16,461	22,110	21,359	96,122
NEVADA COUNTY:													
Daily average	897	980	852	604	454	505	517	559	643	530	546	540	
Month	27,807	27,440	26,412	18,120	14,074	15,150	16,027	17,329	19,290	16,430	16,380	16,740	231,199
SMACKOVER (light):													
Daily average	2,671	2,626	2,593	2,566	2, 562	2,612	2,581	2,542	2,570	2,635	2,629	2,612	
Month	82,801	73,528	80,383	76,980	79, 422	78,360	80,011	78,302	77,100	81,685	78,870	80,972	948,914
SMACKOVER (heavy):													
Daily average	22,698	22,412	21,638	22,085	21, 929	21,853	21,880	21,912	21,285	21,246	21,239	21,188	
Month	703,638	627,536	670,778	662,550	679, 799	655,590	678,280	679,272	638,550	658,626	637,170	656,828	7,948,617
STEPHENS:													
Daily average	239	151	141	140	148	207	242	610	625	644	649	653	
Month	7,409	4,228	4,371	4,200	4,588	6,210	7,502	18,910	18,750	19,964	19,470	20,243	135,845
URBANA:													
Daily average	564	597	586	382	435	449	918	1,333	2,060	2,977	2,804	2,826	
Month	17,484	16,716	18,166	11,450	13, 485	13,470	28,458	41,323	61,800	92,287	84,120	87,606	486,375
Daily average	32,047	31,436	30,442	30,304	29, 957	30,059	30,546	31,332	31,786	32,835	32,897	32,778	31,369
Total 1933	993,457	880,208	493,702	909,120	928, 667	901,770	946,926	971,292	953,580	1,017,885	986,910	1,016,118	11,449,635
Total 1932	1,101,616	1,008,563	1,062,897	1,048,620	1,064, 602	1,022,970	1,060,386	1,062,897	1,019,250	1,019,931	1,020,600	1,037,539	12,529,870
Total 1931	1,574,955	1,402,492	1,469,245	1,412,220	1,446, 274	1,344,450	1,287,585	1,165,569	1,138,380	1,172,389	1,130,700	1,082,148	15,626,407
Total 1930	1,817,685	1,608,376	1,817,871	1,724,460	1,659, 895	1,704,060	1,713,630	1,700,102	1,583,280	1,636,552	1,557,870	1,590,951	20,114,782
Total 1929	2,453,526	2,154,194	2,303,734	2,188,680	2,220, 159	2,112,270	2,137,047	2,086,083	1,959,720	2,000,027	1,911,060	1,917,071	25,443,570
Total 1928	2,791,922	2,571,575	2,687,948	2,472,600	2,342, 847	3,075,911	2,792,139	2,711,787	2,640,070	2,652,848	2,476,080	2,521,571	32,137,934
Total 1927	4,076,469	3,574,256	3,853,920	3,378,240	3,493, 569	3,365,760	3,406,683	3,242,600	3,032,970	3,117,298	2,906,760	2,962,750	40,411,375
Total 1926	5,489,604	4,756,836	5,115,337	5,127,510	5,482, 939	5,064,760	5,019,892	4,878,191	4,603,230	4,625,138	4,299,480	4,266,189	58,729,606

Summary of Changes in Crude Oil Prices During Year 1933

OKLAHOMA, KANSAS, NORTH, CENTRAL AND EAST CENTRAL TEXAS

Gravity—	Jan. 1	Jan. 18[1]	May 2[2]	June 17[3]	July 6[4]	July 6[5]	July 7[6]	Aug. 24[7]	Aug. 25[8]	Sep. 5[9]	Sep. 5[10]	Sep. 29[11]	Sep. 29[12]	Sep. 29[13]
Below 25	$.45	...	$.25	$.20	...	$.30	$.43	...	$.40	...	...	$.65	$.76	...
25-25.9	.47	...	.25	.22	...	.32	.45	...	.42	...	...	.67	.78	...
26-26.9	.49	...	.25	.24	...	.34	.47	...	.44	...	...	.69	.80	...
27-27.9	.51	...	.25	.26	...	.36	.49	...	.46	...	...	.71	.82	...
28-28.9	.53	...	.25	.28	...	.38	.51	...	.48	...	...	.73	.84	...
Below 29	...	$.28	.25	.28	$.61	...	...	$.38	...	$.58	$.48	.73	.84	$.79
29-29.9	.55	.30	.25	.30	.63	.40	.53	.40	.50	.60	.50	.75	.86	.81
30-30.9	.57	.32	.25	.32	.65	.42	.55	.42	.52	.62	.52	.77	.88	.83
31-31.9	.59	.34	.25	.34	.67	.44	.57	.44	.54	.64	.54	.79	.90	.85
32-32.9	.61	.36	.25	.36	.69	.46	.59	.46	.56	.66	.56	.81	.92	.87
33-33.9	.63	.38	.25	.38	.71	.48	.61	.48	.58	.68	.58	.83	.94	.89
34-34.9	.65	.40	.25	.40	.73	.50	.63	.50	.60	.70	.60	.85	.96	.91
35-35.9	.67	.42	.25	.42	.75	.52	.65	.52	.62	.72	.62	.87	.98	.93
36-36.9	.69	.44	.25	.44	.77	.54	.67	.54	.64	.74	.64	.89	1.00	.95
37-37.9	.71	.46	.25	.46	.79	.56	.69	.56	.66	.76	.66	.91	1.02	.97
38-38.9	.73	.48	.25	.48	.81	.58	.71	.58	.68	.78	.68	.93	1.04	.99
39-39.9	.75	.50	.25	.50	.83	.60	.73	.60	.70	.80	.70	.95	1.06	1.00
40 and over	.77	.52	.25	.52	.85	.62	.75	.62	.72	.82	.72	.97	1.08	1.03

Postings by Stanolind Crude Oil Purchasing Co., Texas Co., Continental Oil Co. and Sinclair Crude Oil Purchasing Co. include Oklahoma, Kansas and North Texas. Magnolia Petroleum Co. postings include Oklahoma, Kansas, North Texas, Panola County in East Texas, Lytton Springs and Somerset in Southwest Texas. Humble Oil & Refining Co. postings include North Texas, Ranger, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocona, Lytton Springs and Corsicana light. Postings by Carter Oil Co. and Gypsy Oil Co. include Oklahoma and Kansas.

[1]Effective January 18, Stanolind Crude Oil Purchasing Co., Sinclair Prairie Oil Marketing Co.; January 19, Texas Co.; January 20, Magnolia Petroleum Co. (starting at below 25 degrees, 20 cents, with 2 cents added for each degree upward); January 20, Carter Oil Co. in Oklahoma and Kansas and Humble Oil & Refining Co. in North Central and East Central Texas; January 20, Gypsy Oil Co. in Oklahoma and Kansas and Gulf Production Co. in North, Central and East Central Texas; January 18, Globe Oil & Refining Co. and Tide Water Oil Co. in Kansas and Oklahoma; January 19, Empire Pipe Line Co., Shell Petroleum Corp.; January 18, in Oklahoma, Deep Rock Oil & Refining Co., Barnsdall Refineries, Inc., Continental Oil Co., Bell Oil & Gas Co., Tide Water Oil Co., Champlin Refining Co., Anderson-Prichard Corp., Cushing Refining Co., Eason Oil Co., Johnson Oil Refining Co., Mid-Continent Petroleum Corp., Pepper Gasoline Co., Sunray Oil Co., Yale Oil Corp., Twin State Oil Co., Rock Island Refining Co.; January 20, Philtex Oil Co. and Pure Oil Co.; Oklahoma and North Texas, January 18, Continental Oil Co.; Kansas, January 18, Eldorado Refining Co., Vickers Petroleum Co., Skelly Oil Co. (starting below 25 degrees, 20 cents, with 2 cents added for each degree upward); January 19, White Eagle Oil Corp.

[2]May 2 Humble Oil & Refining Co. posted a flat price of 25 cents a barrel for all gravities in North Central and East Central Texas. May 3 Stanolind Crude Oil Purchasing Co., Texas Co. and Sinclair Prairie Oil Marketing Co. did the same. May 5 Gulf Pipe Line Co. did the same. May 6 Stanolind and Shell Petroleum Corp. posted 25 cents in Kansas and Oklahoma. May 8, Carter Oil Co., Gypsy Oil Co., Sinclair Prairie and Empire Pipe Line Co. did the same. May 9 Texas Co. did the same. Magnolia Petroleum Co., effective May 9, posted the following prices in Oklahoma: Below 28 degrees, 20 cents; 28 to 34.9 degrees, 23 cents; 35 degrees and above, 25 cents. In the fields in which they are buying in Kansas or Oklahoma, or both, the following other companies posted 25 cents a barrel on the date named: Bell Oil & Gas Co., May 2; Barnsdall Refineries, Inc., May 6; Pure Oil Co., May 8; Mid-Continent Petroleum Corp., May 6; Skelly Oil Co., May 6; Vickers Petroleum Corp., May 7; Anderson & Prichard, May 6; Johnson Oil & Refining Co., May 6; Champlin Refining Co., May 6; Yale Refining Co., May 6; Eldorado Refining Co., May 6; Globe Refining Co., May 6; Rock Island Refining Co., May 8; White Eagle Oil Corp., May 9; Continental Oil Co., May 8.

[3]Effective June 17, Sinclair Prairie Oil Marketing Co., Stanolind Crude Oil Purchasing Co., Magnolia Petroleum Co., Continental Oil Co. Effective June 19, Empire Oil & Refining Co. Effective June 17, in Oklahoma alone, Barnsdall Refineries, Inc., Mid-Continent Petroleum Corp., Pure Oil Co., Deep Rock Oil Co. Globe Oil & Refining Co., Golden Rule Refining Co., Tide Water Oil Co. Effective June 17 in Kansas alone, Skelly Oil Co., Dickey Refining Co., Eldorado Refining Co., Derby Oil Co., Kanotex Refining Co. Effective June 19, Gypsy Oil Co. in Oklahoma and Kansas and Gulf Pipe Line Co. in Texas; Carter Oil Co. in Oklahoma and Humble Oil & Refining Co. in Texas; Texas Co. in Oklahoma and Texas. Effective June 20, Shell Petroleum Corp. in Kansas and Oklahoma. Effective June 17, H. F. Wilcox Oil & Gas Co. in Oklahoma.

[4]These graded prices on gravities below 29 were posted by Magnolia, Carter and Shell only.

[5]Posted by Continental Oil Co. in Kansas, Oklahoma and North Texas and Barnsdall Refineries in Oklahoma. Continental Oil Co., Sinclair Prairie Oil Marketing Co., Empire Oil & Refining Co., Barnsdall Refineries, Inc., in Oklahoma; Philtex Oil Co. (Phillips Petroleum Co.) in Oklahoma and Kansas; Vickers Refining Co., Dickey Refining Co., Derby Oil Co. and Kanotex Refining Co. in Kansas. Effective July 7, Pure Oil Co. in Oklahoma and East Central Texas, including the Van Field; White Eagle Oil Corp. in Kansas; Skelly Oil Co. in Kansas.

[6]Carter Oil Co. in Kansas and Oklahoma; Stanolind Crude Oil Purchasing Co. in Kansas, Oklahoma and North Central and East Central Texas; Tide Water Oil Co. in Oklahoma. July 8, Texas Co. in Oklahoma; Shell Petroleum Corp. in Kansas and Oklahoma; Mid-Continent Petroleum Corp., Rock Island Refining Co., H. F. Wilcox Oil & Gas Co., Champlin Refining Co., Bell Oil & Gas Co., Johnson Refining Co., Eason Oil Co., Deep Rock Oil Corp., Cushing Refining Co., Globe Refining Co., Yale Oil Corp. in Oklahoma. July 13, Gypsy Oil Co. in Kansas and Oklahoma.

[7]Magnolia Petroleum Co. in Oklahoma, North and East Central Texas. Effective July 11, Continental Oil Co. in Kansas, Oklahoma and North Texas. Effective July 11, Kanotex Refining Co. and White Eagle Oil Corp. in Kansas; Empire Oil & Refining Co. in Kansas and Oklahoma; Sinclair Prairie Oil Marketing Co. in Kansas, Oklahoma, North Central and East Central Texas. Pure Oil Co. in Oklahoma; Philtex Oil Co. in Oklahoma and Kansas; Skelly Oil Co. in Kansas.

[8]Posted by Humble Oil & Refining Co. Effective August 25, by Stanolind Crude Oil Purchasing Co., Sinclair Prairie Oil Marketing Co., the Texas Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Pure Oil Co. Effective August 28 by Bell Oil & Gas Co. Prices effective in North Texas, Central and East Central Texas only.

[9]Posted by Carter Oil Co. in Oklahoma and Kansas; Magnolia Petroleum Co. in Oklahoma; Pure Oil Co. in Oklahoma and Kansas; Rock Island Refining Co. in Oklahoma; Shell Petroleum Corp. in Oklahoma and Kansas; Gypsy Oil Co. in Oklahoma and Kansas; Sinclair Prairie Oil Marketing Co. in Oklahoma and Kansas. Effective August 25 but schedule beginning with "below 29 degrees, 48 cents" by Stanolind Crude Oil Purchasing Co. in Oklahoma and Kansas; Texas Co. in Oklahoma; Deep Rock Oil & Refining Corp. in Oklahoma; Eason Oil Co. in Oklahoma; Gypsy Oil Co. in Oklahoma and Kansas; Johnson Oil Refining Co. in Oklahoma; Kanotex Refining Co. in Kansas; Mid-Continent Petroleum Corp. in Oklahoma; National Refining Co. in Oklahoma and Kansas. Sunflower Refining Co. in Kansas; Tide Water Oil Co. in Oklahoma and H. F. Wilcox Oil & Gas Co. in Oklahoma. Effective August 26 by Empire Pipe Line Co. in Oklahoma and Kansas; Skelly Oil Co. in Kansas and White Eagle Oil Corp. in Kansas. Effective August 25 by Anderson & Prichard, Inc., in Oklahoma and Golden Rule Refining Co. and Vickers Petroleum Co. in Kansas. Effective August 28 Bell Oil & Gas Co. in Oklahoma.

[10]Posted by Continental Oil Co. in Oklahoma and Kansas only. The following companies purchasing in Kansas or Oklahoma, or both, begin their price schedules: Below 25 degrees, 50 cents; 25-25.9, 52 cents with 2 cents added for each degree upward to 40 and over at 82 cents; Carter Oil Co., Magnolia Petroleum Co., Pure Oil Co., Rock Island Refining Co., Shell Petroleum Corp., Sinclair Prairie Oil Marketing Co., Skelly Oil Co. All others begin their schedules at below 29 degrees, 58 cents, except Philtex Oil Co. which begins with below 31 degrees at 64 cents.

[11]Posted by Continental Oil Co. in North Texas.

[12]Met by all companies.

[13]Posted by Texas Co. in Oklahoma only; Anderson & Prichard, Inc., Bell Oil & Gas Co., Deep Rock Oil Co., Globe Refining Co., Magnolia Petroleum Co., Mid-Continent Petroleum Corp., the Texas Co., Tide Water Oil Co. and Pure Oil Co., in Oklahoma, Derby Oil Co., Golden Rule Refining Co., Kanotex Refining Co., Vickers Refining Co., and Skelly Oil Co. in Kansas. Stanolind Crude Oil Purchasing Co., Carter Oil Co., Gypsy Oil Co., National Refining Co., Shell Petroleum Corp., Sinclair Prairie Oil Marketing Co., Continental Oil Co., Empire Pipe Line Co., and Philtex Oil Co. in Kansas and Oklahoma. Effective September 29 by White Eagle Oil Corp. and on October 1 by Barnsdall Refineries, Inc., in Oklahoma.

[14]Posted by the Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Bell Oil & Gas Co. and Continental Oil Co. in North Texas, Central Texas and East Central Texas. Effective same date in the Van Pool, Van Zandt County, Texas, Pure Oil Co. posted below 29 degrees 84 cents with 2 cents added for each degree up to 40 and over at $1.08.

MEXICAN CRUDES

	Jan.	Feb.	Mar.	Apr.	May	June	July	Sept.	Nov.	Dec.
Panuco heavy, f.o.b. Tampico	$.45	$.44	$.44	$.42	$.41	$.375	$.432	$.466	$.69	$.72

Note—Prices based on transactions of previous month.

TEXAS PANHANDLE

Gray County

Gravity—	Jan. 1	Jan. 19[1]	Jan. 20[2]	Jan. 20[3]	May 2[4]	June 17[5]	June 19[6]	July 7[7]	July 11[8]	Aug. 2[9]	Aug. 24[10]	Sep. 8[11]	Sep. 29[12]
30 to 30.9	...	...	...	...	...	...	...	...	$.45	$.30	...	...	...
31 to 31.9	...	...	...	...	...	...	...	...	.47	.32	...	...	...
32 to 32.9	...	...	...	...	...	...	...	...	.49	.34	...	...	...
33 to 33.9	...	...	...	...	...	...	...	...	.51	.36	...	...	...
34 to 34.9	...	...	...	...	...	...	...	...	.53	.38	...	...	...
Below 35	$.56	$.36	$.34	...	$.20	...	$.34	$.57	...	...	$.44	$.64	$.79
35 to 35.9	.58	.38	.36	...	.20	...	.36	.59	.55	.40	.46	.66	.81
Below 36	...	...	...	$.30	...	$.30	...	...	...	...	...	...	...
36 to 36.9	.60	.40	.38	.32	.20	.32	.38	.61	.57	.42	.48	.68	.83
37 to 37.9	.62	.42	.40	.34	.20	.34	.40	.63	.59	.44	.50	.70	.85
38 to 38.9	.64	.44	.42	.36	.20	.36	.42	.65	.61	.46	.52	.72	.87
39 to 39.9	.66	.46	.44	.38	.20	.38	.44	.67	.63	.48	.54	.74	.89
40 and above	.68	.48	.46	.40	.20	.40	.46	.69	.65	.50	.56	.76	.91

[1]Posted by Texas Co.

[2]Posted by Humble Oil & Refining Co., Magnolia Petroleum Co. and Gulf Pipe Line Co.

[3]Posted January 20 by Philtex Oil Co.; February 28, Humble Oil & Refining Co.; March 6, Texas Co.; March 7, Magnolia Petroleum Co.

[4]Posted May 2 by Humble Oil & Refining Co.; May 3, Texas Co.; May 6, Philtex Oil Co.; May 8, Magnolia Petroleum Co.

[5]Posted June 17 by Sinclair Prairie Oil Marketing Co.; June 19, Texas Co., Magnolia Petroleum Co., H. F. Wilcox Oil & Gas Co. and Philtex Oil Co.

[6]Posted by Humble Oil & Refining Co. and Gulf Pipe Line Co.

[7]Posted by Magnolia Petroleum Co.; effective July 11, Sinclair Prairie Oil Marketing Co.

[8]Posted by Philtex Oil Co.

[9]Posted by Philtex Oil Co.

[10]Posted by Humble Oil & Refining Co.; effective August 25 by the Texas Co., Gulf Pipe Line Co., Sinclair Prairie Oil Marketing Co., Wilcox Oil & Gas Co., Magnolia Petroleum Co.; Philtex Oil Co. August 26 pays: Below 31 gravity, 38 cents, with 2 cents added for each degree upward to 40 and above at 58 cents.

[11]Posted by Humble Oil & Refining Co., the Texas Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Sinclair Prairie Oil Marketing Co., Wilcox Oil & Gas Co.; effective September 9 Philtex Oil Co. posted below 31 degrees, 61 cents, with 2 cents added for each degree up to 40 and over at 81 cents.

[12]Posted by the Texas Co., Humble Oil & Refining Co., Magnolia Petroleum Co., Sinclair Prairie Oil Marketing Co. and H. F. Wilcox Oil & Gas Co.; effective same date Philtex Oil Co. posted below 31 degrees, 71 cents, with 2 cents added for each degree up to 40 and over at 91 cents.

(Carson, Hutchinson and Moore Counties)

Gravity—	Jan. 1[1]	Jan. 1[2]	Jan. 19[3]	Jan. 20[4]	Jan. 20[5]	May 2[6]	June 17[7]	June 19[8]	July 7[9]	July 11[10]	Aug. 2[11]	Aug. 24[12]	Sep. 8[13]	Sep. 29[14]
Below 29	...	$.26	...	...	...	...	...	...	...	...	...	...	...	...
29 to 29.9	...	.28	...	...	...	...	...	...	...	...	...	...	...	...
30 to 30.9	...	.30	...	...	...	...	...	...	...	$.35	$.20	...	...	...
31 to 31.9	...	.32	...	...	...	...	...	...	...	.37	.22	...	...	...
32 to 32.9	...	.34	...	...	...	...	...	...	...	.39	.24	...	...	...
33 to 33.9	...	.36	...	...	...	...	...	...	...	.41	.26	...	...	...
Below 34	...	...	$.31	$.29	...	...	...	...	...	...	...	...	...	...
34 to 34.9	...	.38	...	...	...	...	...	...	...	.43	.28	...	...	...
Below 35	$.51	...	...	...	...	...	...	$.29	$.47	...	...	$.39	$.59	$.69
35 to 35.9	.53	.40	.33	.31	...	...	...	.31	.49	.45	.30	.41	.61	.71
Below 36	...	...	...	...	$.20	$.18	$.20	...	...	...	...	...	...	...
36 to 36.9	.55	.42	.35	.33	.22	.18	.22	.33	.51	.47	.32	.43	.63	.73
37 to 37.9	.57	.44	.37	.35	.24	.18	.24	.35	.53	.49	.34	.45	.65	.75
38 to 38.9	.59	.46	.39	.37	.26	.18	.26	.37	.55	.51	.36	.47	.67	.77
39 to 39.9	.61	.48	.41	.39	.28	.18	.28	.39	.57	.53	.38	.49	.69	.79
40 and above	.63	.50	.43	.41	.30	.18	.30	.41	.59	.55	.40	.51	.71	.81

[1]Posted December 15, 1932, by Humble Oil & Refining Co. and Continental Oil Co.; December 19, Gulf Production Co.; January 1, 1933, Magnolia Petroleum Co.

[2]Posted December 16, 1932, by Philtex Oil Co.

[3]Posted by Texas Co.

[4]Posted January 20 by Humble Oil & Refining Co., Magnolia Petroleum Co., Continental Oil Co. and Gulf Pipe Line Co.

[5]Posted January 20 by Philtex Oil Co.; February 28, Humble Oil & Refining Co. and Continental Oil Co.; March 6, Texas Co.; March 7, Magnolia Petroleum Co.

[6]Posted May 2 by Humble Oil & Refining Co.; May 3, Texas Co.; May 5, Gulf Pipe Line Co.; May 6, Philtex Oil Co.; May 8, Magnolia Petroleum Co.

[7]Posted June 17 by Sinclair Prairie Oil Marketing Co.; June 19 by Texas Co., Magnolia Petroleum Co. and Philtex Oil Co.

[8]Posted by Humble Oil & Refining Co. and Gulf Pipe Line Co.

[9]Posted by Magnolia Petroleum Co.; effective July 11, Sinclair Prairie Oil Marketing Co.

[10]Posted by Philtex Oil Co.

[11]Posted by Philtex Oil Co.

[12]Posted by Humble Oil & Refining Co.; effective August 25 by Gulf Pipe Line Co., Texas Co., Magnolia Petroleum Co., Wilcox Oil & Gas Co.; effective August 26 the Philtex Oil Co. posted as follows: Below 31 degrees, 28 cents, with 2 cents added for each degree upward to 40 and over at 48 cents.

[13]Posted by Humble Oil & Refining Co., Gulf Pipe Line Co., Texas Co., Magnolia Petroleum Co. and Wilcox Oil & Gas Co.; effective September 9 Philtex Oil Co. posted below 31 degrees, 51 cents, with 2 cents added for each degree upward to 40 and over at 71 cents.

[14]Posted by Texas Co., Humble Oil & Refining Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Wilcox Oil & Gas Co. and Continental Oil Co.; effective same date Philtex Oil Co. posted below 31 degrees, 61 cents, with 2 cents added for each degree up to 40 and over at 81 cents.

WEST TEXAS

	Jan. 1	Jan. 19	May 3	June 19	June 20	Aug. 24	Sept. 8	Sept. 29
Crane, Upton, Ector, Crockett, Howard, Glasscock and Mitchell	[1]$.50	[2]$.30	[4]$.20	$.30	....	[5]$.40	[6]$.60	$.70
Winkler and Pecos Counties and Lea County, N. Mex.	[1].50	[2].30	[4].20	.30	....	[5].40	[6].60	.75
Pecos County, Yates shallow pool	...	....	....	....	....	....	....	[7].65
Toborg, Pecos County[3]	...	.40	....	....	$.25	....	....	....

[1]Posted by Humble Oil & Refining Co., Gulf Pipe Line Co., Texas Co., Stanolind Oil & Gas Co. and Magnolia Petroleum Co. paying 65 cents.

[2]Posted by Texas Co., followed January 20 by the other purchasers.

[3]Posted by Shell Petroleum Corp.

[4]Posted by Humble Oil & Refining Co., followed by other purchasers.

[5]Effective August 24 by Humble Oil & Refining Co. Effective August 25 by Texas Co., Gulf Pipe Line Co., Shell Petroleum Corp., Magnolia Petroleum Co. and by Stanolind Oil & Gas Co. in Winkler County only.

[6]Posted by Humble Oil & Refining Co., the Texas Co., Gulf Pipe Line Co., Shell Petroleum Corp., Magnolia Petroleum Co., and by Stanolind Oil & Gas Co. in Winkler County only.

[7]Posted by Shell Petroleum Corp.

Lea County, New Mexico, see Rocky Mountain table.

Iatan and Westbrook, same as North Texas.

EAST TEXAS

Jan. 1	Jan. 18[1]	Apr. 24[2]	Apr. 26[3]	June 17[4]	July 6[5]	Aug. 17	Aug. 24[6]	Aug. 25[7]	Aug. 26[10]	Sept. 8[11]	Sept. 30[12]
$.75	$.50	$.10	$.25	$.50	$.75	$.50	$.60	$.75	$.60	$.90	$1.00

[1]Posted by Tide Water Oil Co. and Sinclair Prairie Oil Marketing Co., January 18; Shell Petroleum Corp., January 19; Texas Co., Magnolia Petroleum Co., Panola Pipe Line Co. and Humble Oil & Refining Co., January 20.

[2]Posted by Texas Co. April 24; by Humble Oil & Refining Co. and Stanolind Crude Oil Purchasing Co. April 25.

[3]Posted by Magnolia Petroleum Co. Other buyers, with the exception of Texas Co., adopted the Magnolia price. May 10 Texas Co. posted 25 cents a barrel. May 12 Humble Oil & Refining Co., which had withdrawn postings, adopted the 25-cent price.

[4]Posted by Sinclair Prairie Oil Marketing Co., Stanolind Crude Oil Purchasing Co. and Magnolia Petroleum Co. June 19 posted by Texas Co., Tide Water Oil Co., Panola Pipe Line Co., Humble Oil & Refining Co. and Gulf Pipe Line Co.

[5]Effective July 6, Sinclair Prairie Oil Marketing Co. posted 75 cents; effective July 6, Empire Oil & Refining Co. 75 cents; effective July 7, Magnolia Petroleum Co. 75 cents; Sun Oil Co., 75 cents; June 17 East Texas posted by Sinclair Prairie Oil Marketing Co.,

Stanolind Crude Oil Purchasing Co., Magnolia Petroleum Co. Effective June 19, Tide Water Oil Co., Panola Pipe Line Co., Gulf Pipe Line Co.

[7]Sinclair Prairie Oil Marketing Co. Empire Oil & Refining Co. August 25, Magnolia Petroleum Co., Sun Oil Co. August 2, Panola Pipe Line Co.

[8]Posted by Humble Oil & Refining Co. Effective August 26, Shell Petroleum Corp., Stanolind Crude Oil Purchasing Co., Texas Co., Gulf Pipe Line Co., Tide Water Oil Co., Sinclair Prairie Oil Marketing Co., Magnolia Petroleum Co., all 60 cents.

[9]Posted by Sun Oil Co. and Panola Pipe Line Co.

[10]Posted by Empire Oil & Refining Co.

[11]Posted by Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Shell Petroleum Corp. Texas Co., Gulf Pipe Line Co., Tide Water Oil Co., Sinclair Prairie Oil Marketing Co., Magnolia Petroleum Co., Sun Oil Co., Panola Pipe Line Co. and Empire Oil & Refining Co.

[12]Posted by Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Shell Petroleum Corp., Gulf Pipe Line Co., Tide Water Oil Co., Sinclair Prairie Oil Marketing Co., Magnolia Petroleum Co., Sun Oil Co., Panola Pipe Line Co. and Empire Oil & Refining Co.

SOUTH CENTRAL AND SOUTHWEST TEXAS

	Jan. 1	Jan. 20	Mar. 6	May 2	May 3	May 8	June 19	July 7	Aug. 2[13]	Aug. 24[14]	Aug. 25[15]	Sep. 8[16]	Sep. 29
Darst Creek	$.60	[2]$.35	...	[3]$.23	...	...	[12]$.35	...	...	$.50	...	$.77	$.87
Luling	.50	[2] 30	...	...	...	[3]$.20	$.30	[12]$.50	$ 35	...	$.45	...	.75
Mirando	.55	[4].35	...	[4].25	...	...	[11].35	...	...	.50	...	.70	...
Pettus	.80	[5].55	...	[5].35	...	...	[5].55	...	...	.65	...	.95	...
Salt Flat	[1].60	[5].40	...	[6].23	...	...	[5].40	...	...	.50	...	.95	...
Lytton Springs	.70	[7].45	...	...	...	[6].25	[5].45	.60	.45	...	.55	.77	.95
Duval County	...	...	...	[8]1.35	...	[8]$.25	[8].35	...	...	...	.50	.85	.80
Saxet	...	...	...	[6].45	...	[6].30	...	[6].45	...	...	.55	...	.75	.85

[1]Magnolia Petroleum Co. January 1 was paying 75 cents for Salt Flat crude.

[2]Texas Co. January 19 posted 35 cents for Darst Creek; January 20 Magnolia Petroleum Co. posted 35 cents; Humble Oil & Refining Co. and Gulf Pipe Line Co. 40 cents.

[3]Magnolia Petroleum Co.

[4]Magnolia Petroleum Co. and Humble Oil & Refining Co.

[5]Humble Oil & Refining Co. and Gulf Pipe Line Co.

[6]Texas Co.

[7]May 2 by Humble Oil & Refining Co.; May 3, Texas Co.; May 5, Gulf Pipe Line Co.; May 8, Magnolia Petroleum Co.

[8]Humble Oil & Refining Co.

[9]May 2 by Humble Oil & Refining Co.; May 3, Shell Petroleum Corp.

[10]Texas Co. and Magnolia Petroleum Co. posted 35 cents for Darst Creek. Gulf Pipe Line Co. and Humble Oil & Refining Co. posted 40 cents.

[11]Magnolia Petroleum Co. posted 35 cents for Mirando. Humble Oil & Refining Co. posted 40 cents.

[12]Posted by Magnolia Petroleum Co.

Thrall prices same as North Central Texas, less 19½ cents per cwt. freight.

[13]Magnolia Petroleum Co. 40 cents at Darst Creek and Mirando; Darst Creek, Gulf Pipe Line Co. and Humble Oil & Refining Co.

[14]Humble Oil & Refining Co. August 25 in Darst Creek by Gulf Pipe Line Co., Magnolia Petroleum Co., Texas Co. Effective in Mirando August 25 by Magnolia Petroleum Co. Effective in Pettus and Salt Flat on August 25 by Gulf Pipe Line Co.

[15]Luling and Lytton Springs by Magnolia Petroleum Co.; Duval County by Texas Co. Saxet, effective August 24, by the Humble Oil & Refining Co. and on August 25 by the Texas Co.

[16]Posted by Humble Oil & Refining Co. in Darst Creek, Mirando, Pettus, Salt Flat and Saxet. Effective same date in Darst Creek by Gulf Pipe Line Co. and the Texas Co. Effective September 8, Magnolia Petroleum Co. posted 74 cents in Darst Creek; effective in Mirando September 8 by Magnolia Petroleum Co.; effective in Salt Flat and Pettus on September 8 by Humble Oil & Refining Co. and Gulf Pipe Line Co., Luling and Lytton Springs by Magnolia Petroleum Co., Duval County by the Texas Co., Saxet effective September 8 by Humble Oil & Refining Co. and the Texas Co.

CORSICANA

	Jan. 1	Jan. 20	May 8	June 17
Corsicana, heavy*	$.50	$.30	$.20	$.30

*Magnolia Petroleum Co.

CONROE

Gravity—	Jan. 1[1]	Jan. 19[2]	Jan. 20[3]	May 2[4]	June 19[5]	June 24[7]	Aug. 8[8]	Sept. 8[9]	Sept. 29[9]
35 to 35.9	$.80	$.59	$.54	$.30	$.59	$.59	$.69	$.99	$1.09
36 to 36.9	.82	.60	.56	.30	.61	.60	.71	1.01	1.11
37 to 37.9	.84	.61	.58	.30	.63	.61	.73	1.03	1.13
38 to 38.9	.86	.62	.60	.30	.65	.62	.75	1.05	1.15
39 to 39.9	.88	.63	.62	.30	.67	.63	.77	1.07	1.17
40 and over	.90	.64	.64	.30	.69	.64	.79	1.09	1.19

[1]Posted by Humble Oil & Refining Co. December 15, 1932.

[2]Posted by Tide Water Oil Co.

[3]Posted by Humble Oil & Refining Co. Texas Co. met Humble's prices March 6.

[4]May 2 Humble Oil & Refining Co. withdrew gravity price schedule. Humble's postings were followed by other purchasers with the exception of Tide Water Oil Co., which posted 40 cents a barrel for Conroe oil.

[5]Posted by Humble Oil & Refining Co.

[6]Posted by Texas Co. and Tide Water Oil Co. June 22 these two companies adopted the Humble's schedule.

[7]Posted by Humble Oil & Refining Co. August 25 by Texas Co. and Tide Water Oil Co.

[8]Posted by Humble Oil & Refining Co., the Texas Co. and Tide Water Oil Co.

[9]Posted by Humble Oil & Refining Co. and Tide Water Oil Co. and on September 30 by the Texas Co., which on September 29 had posted a schedule of $1.07 to $1.12 with a 1-cent spread on each degree.

NORTH LOUISIANA-ARKANSAS

Caddo, Bull Bayou, Cotton Valley, Sarepta-Carterville, Rainbow, Crichton, DeSoto, Haynesville, Homer (La.) and El Dorado (Ark.)—

Gravity—	Jan. 1	Jan. 19[1]	Jan. 20[2]	May 3[3]	June 19[4]	Aug. 25[5]	Sept. 8[7]	Sept. 29[8]
Below 25	$.39	...	...	...	...	...	...	...
25-25.9	.41	...	...	...	...	...	...	...
26-26.9	.43	...	...	...	...	...	...	...
27-27.9	.45	...	...	...	...	...	...	...
28-28.9	.47	...	...	...	...	...	...	...
Below 29	...	$.28	$.20	$.25	$.28	$.38	$.68	$.79
29-29.9	.49	.30	.22	.25	.30	.40	.70	.81
30-30.9	.51	.32	.24	.25	.32	.42	.72	.83
31-31.9	.53	.34	.26	.25	.34	.44	.74	.85
32-32.9	.55	.36	.28	.25	.36	.46	.76	.87
33-33.9	.57	.38	.30	.25	.38	.48	.78	.89
34-34.9	.59	.40	.32	.25	.40	.50	.80	.91
35-35.9	.61	.42	.34	.25	.42	.52	.82	.92
36-36.9	.63	.44	.36	.25	.44	.54	.84	.95
37-37.9	.65	.46	.38	.25	.46	.56	.86	.97
38-38.9	.67	.48	.40	.25	.48	.58	.88	.99
39-39.9	.69	.50	.42	.25	.50	.60	.90	1.01
40 and above	.71	.52	.44	.25	.52	.62	.92	1.03

[1]Posted by the Texas Co., January 19; Louisiana Oil Refining Co. and Gulf Refining Co., January 20 (starting at below 25 degrees, 20 cents, with 2 cents added for each degree upward).

[2]Magnolia Petroleum Co., January 20; Standard Oil Co. of Louisiana, January 20, posted the following prices: Caddo, below 29 gravity, 20 cents; 40 gravity and above, 44 cents. Sabine and DeSoto, below 29 gravity, 25 cents; 40 and above, 49 cents. Homer, below 29 gravity, 28 cents; 40 gravity and above, 52 cents. Sarepta and Carterville, below 29 gravity, 17 cents; 40 gravity and above, 41 cents. El Dorado, below 29 gravity, 25 cents; 40 gravity and above, 49 cents. Haynesville, below 29 gravity, 19 cents; 40 gravity and above, 42 cents. The above all carry 2 cents differential for each degree in gravity. Smackover, all grades, 20 cents.

[3]Posted by the Texas Co. May 3, by Gulf Refining Co. of Louisiana and Standard Oil Co. of Louisiana May 6, by Magnolia Petroleum Co. May 8. Louisiana-Arkansas Pipe Line Co. posted 15 cents in Urania and 25 cents in other North Louisiana fields.

[4]Posted by the Texas Co., Gulf Refining Co. of Louisiana and Louisiana Oil Refining Co.; by Magnolia Petroleum Co. June 20. Standard Oil Co. of Louisiana, June 19, posted prices as follows (starting below 29 degrees, with 2 cents added for each degree upward to 40 and above): Caddo, 26-50 cents; Homer, 32-56 cents; Haynesville, 29-53 cents; Sabine, DeSoto, Carterville and Sarepta, 35-59 cents; El Dorado, 37-61 cents.

January 1, Smackover, all grades, posted by Magnolia Petroleum Co., Louisiana Oil & Refining Co., Texas Co.; Gulf Refining Co. of Louisiana, 50 cents; Standard Oil Co. of Louisiana, 30 cents; Root Refineries, 40 cents; Leon Oil & Refining Co. and McMillan Oil Products Co., 40 cents. Urania posted by H. L. Hunt, Inc., and Louisiana Oil & Refining Co., 55 cents. East El Dorado posted by Magnolia Petroleum Co. and Gulf Refining Co., 65 cents.

January 19, Smackover, all grades, posted by Texas Co., 30 cents; January 20, Standard Oil Co. of Louisiana, 20 cents; Magnolia Petroleum Co., 20 cents; Gulf Refining Co., 30 cents; Louisiana Oil Refining Corp., 25 cents. Urania posted by Louisiana Oil Refining Co. and H. L. Hunt, Inc., 25 cents; East El Dorado, January 20, Magnolia Petroleum Co., 20 cents; Gulf Refining Co., 30 cents.

May 3, Smackover, all grades, posted by Texas Co., 20 cents; May 6, Gulf Refining Co. and Standard Oil Co. of Louisiana, 20 cents. May 9, Urania, posted by H. L. Hunt, Inc., 30 cents. East El Dorado, May 3, Texas Co., 25 cents; May 6, Gulf Refining Co. and Standard Oil Co. of Louisiana, 25 cents; May 8, Magnolia Petroleum Co., 25 cents.

June 19, Smackover, all grades, posted by Texas Co., Standard Oil Co. of Louisiana and Magnolia Petroleum Co., 30 cents; Gulf Refining Co., 20 cents; Louisiana Oil Refining Corp., 25 cents. East El Dorado posted June 20 by Magnolia Petroleum Co., 20 cents; Gulf Refining Co., 30 cents. Philtex Oil Co., June 19, posted 20 cents for all grades in Union and Ouachita Counties, Arkansas.

[5]Posted by Texas Co., Gulf Refining Co., Magnolia Petroleum Co., Stanolind Oil & Gas Co., in Pine Island district, Louisiana, and Marion County, Texas, posts below 29 degrees, 33 cents; 40 and above 57 cents, with 2 cents differential per degree.

[6]Smackover, Ark., all grades, effective August 25, posted by Texas Co. and Magnolia Petroleum Co., 40 cents; same date, Standard of Louisiana, 35 cents; Louisiana Oil Refining Corp., 35 cents; Gulf Refining Co., 40 cents. Effective August 26, Phillips Petroleum Co., 35 cents. Urania, La., August 26, 45 cents, posted by H. L. Hunt, Inc. East El Dorado, August 25, 40 cents, posted by Magnolia Petroleum Co. and Gulf Refining Co.

[7]Posted by the Texas Co., Magnolia Petroleum Co., Gulf Refining Co. Effective September 8, Stanolind Oil & Gas Co., in Pine Island in Louisiana and Marion County, Texas, below 25 degrees, 55 cents, with 2 cents added for each degree up to 40 and over at 87 cents. Effective September 11, Urania, La., 65 cents, posted by H. L. Hunt, Inc.

[8]Posted by the Texas Co., Magnolia Petroleum Co. and Gulf Refining Co. Effective same date, Stanolind Oil & Gas Co. in Pine Island, La., and Marion County, Texas, posted below 25 degrees, 63 cents, with 2 cents added for each degree up to 40 and over at 95 cents. H. L. Hunt, Inc., and Louisiana Oil Refining Co. on October 3 posted Urania, La., at 75 cents.

Miller County, Ark.—	Aug. 25	Sept. 8	Sept. 29
Below 25	....	$.51	.$62
25-25.9	....	.53	.64
26-26.9	....	.55	.66
27-27.9	....	.57	.68
28-28.9	....	.59	.70
Below 29	.29	....	....
29-29.9	.31	.61	.72
30-30.9	.33	.63	.74
31-31.9	.35	.65	.76
32-32.9	.37	.67	.78
33-33.9	.39	.69	.80
34-34.9	.41	.71	.82
35-35.9	.43	.73	.84
36-36.9	.45	.75	.86
37-37.9	.47	.77	.88
38-38.9	.49	.79	.90
39-39.9	.51	.81	.92
40 and over	.53	.83	.94

Cotton Valley, La.—	Sept. 29
Below 25	$.70
25-25.9	.72
26-26.9	.74
27-27.9	.76
28-28.9	.78
Below 29	....
29-29.9	.80
30-30.9	.82
31-31.9	.84
32-32.9	.86
33-33.9	.88
34-34.9	.90
35-35.9	.92
36-36.9	.94
37-37.9	.96
38-38.9	.98
39-39.9	1.00
40 and over	1.02

El Dorado, Ark.—	June 19	Aug. 25	Sept. 8	Sept. 29
Below 25	....	....	$.67	$.75
25-25.9	....	....	.69	.77
26-26.9	....	....	.71	.79
27-27.9	....	....	.73	.81
28-28.9	....	....	.75	.83
Below 29	.37	.47	....	....
29-29.9	.39	.49	.77	.85
30-30.9	.41	.51	.79	.87
31-31.9	.43	.53	.81	.89
32-32.9	.45	.55	.83	.91
33-33.9	.47	.57	.85	.93
34-34.9	.49	.59	.87	.95
35-35.9	.51	.61	.89	.97
36-36.9	.53	.63	.91	.99
37-37.9	.55	.65	.93	1.01
38-38.9	.57	.67	.95	1.03
39-39.9	.59	.69	.97	1 05
40 and over	.61	.71	.99	1.07

Haynesville, La.—	June 19	Aug. 25	Sept. 8	Sept. 29
Below 25	....	....	$.57	$.65
25-25.9	....	....	.59	.67
26-26.9	....	....	.61	.69
27-27.9	....	....	.63	.71
28-28.9	....	....	.65	.73
Below 29	.29	.35	....	....
29-29.9	.31	.37	.67	.75
30-30.9	.33	.39	.69	.77
31-31.9	.35	.41	.71	.79
32-32.9	.37	.43	.73	.81
33-33.9	.39	.45	.75	.83
34-34.9	.41	.47	.77	.85
35-35.9	.43	.49	.79	.87
36-36.9	.45	.51	.81	.89
37-37.9	.47	.53	.83	.91
38-38.9	.49	.55	.85	.93
39-39.9	.51	.57	.87	.95
40 and above	.53	.59	.89	.97

Homer, La.—	June 19	Aug. 25	Sept. 8	Sept. 29
Below 25	....	....	$.61	$.71
25-25.9	....	....	.63	.73
26-26.9	....	....	.65	.75
27-27.9	....	....	.67	.77
28-28.9	....	....	.69	.79
Below 29	.32	.39	.71	.81
29-29.9	.34	.41	....	....
30-30.9	.36	.43	.73	.83
31-31.9	.38	.45	.75	.85
32-32.9	.40	.47	.77	.87
33-33.9	.42	.49	.79	.89
34-34.9	.44	.51	.81	.91
35-35.9	.46	.53	.83	.93
36-36.9	.48	.55	.85	.95
37-37.9	.50	.57	.87	.97
38-38.9	.52	.59	.89	.99
39-39.9	.54	.61	.91	1.01
40 and over	.56	.63	.93	1.03

Sarepta-Carterville, La.—	Aug. 25	Sept. 8	Sept. 29
Below 25	....	$.65	$.75
25-25.9	....	.67	.77
26-26.9	....	.69	.79
27-27.9	....	.71	.81
28-28.9	....	.73	.83
Below 29	.43	....	....
29-29.9	.45	.75	.85
30-30.9	.47	.77	.87
31-31.9	.49	.79	.89
32-32.9	.51	.81	.91
33-33.9	.53	.83	.93
34-34.9	.55	.85	.95
35-35.9	.57	.87	.97
36-36.9	.59	.89	.99
37-37.9	.61	.91	1.01
38-38.9	.63	.93	1.03
39-39.9	.65	.95	1.05
40 and over	.67	.97	1.07

Caddo, La.—	June 19	Aug. 25[1]	Sept. 8[2]	Sept. 29
Below 25	....	....	$.55	$.63
25-25.9	....	....	.57	.65
26-26.9	....	....	.59	.67
27-27.9	....	....	.61	.69
28-28.9	....	....	.63	.71
Below 29	.26	.33	....	....
29-29.9	.28	.35	.65	.73
30-30.9	.30	.37	.67	.75
31-31.9	.32	.39	.69	.77
32-32.9	.34	.41	.71	.79
33-33.9	.36	.43	.73	.81
34-34.9	.38	.45	.75	.83
35-35.9	.40	.47	.77	.85
36-36.9	.42	.49	.79	.87
37-37.9	.44	.51	.81	.89
38-38.9	.46	.53	.83	.91
39-39.9	.48	.55	.85	.93
40 and above	.50	.57	.87	.95

[1]Posted by Standard Oil Co. of Louisiana. Met by Louisiana Oil Refining Co. in Caddo, Homer, Haynesville and Cotton Valley.

Sabine-DeSoto, La.—	June 19	Aug 25	Sept 8	Sept 29
Below 25	....	....	$.62	$.69
25-25.9	....	....	.64	.71
26-26.9	....	....	.66	.73
27-27.9	....	....	.68	.75
28-28.9	....	....	.70	.77
Below 29	.35	.40	....	....
29-29.9	.37	.42	.72	.79
30-30.9	.39	.44	.74	.81
31-31.9	.41	.46	.76	.83
32-32.9	.43	.48	.78	.85
33-33.9	.45	.50	.80	.87
34-34.9	.47	.52	.82	.89
35-35.9	.49	.54	.84	.91
36-36.9	.51	.56	.86	.93
37-37.9	.53	.58	.88	.95
38-38.9	.55	.60	.90	.97
39-39.9	.57	.62	.92	.99
40 and over	.59	.64	.94	1 01

CENTRAL WEST FIELDS

	Jan. 1	Jan. 18	May 9	June 16	July 5	July 12	Aug. 1	Aug. 25	Sept. 9	Sept. 11	Sept. 29	Sept. 30	Oct. 1
Lima[1]	$1.00	[2]$ 70	$.55	$.75	$1.05	$ 95	$.85	$.95	$1.20	....	$1.30	....	....
Wooster[1]	.95	.70	[7].50	.50	....	....	....	....	....	....	....	....	....
Illinois[1]	.87	.62	.47	.67	1.00	.90	77	.87	1.12	....	1.23	....	....
Indiana[3]	.52	.40	.25	.45	....	....	....	....	....	....	....	....	....
Princeton[1]	.87	.62	.47	.67	1.00	.90	.77	.87	1.12	....	1.23	....	....
Plymouth[1] (shut in)	....	....	....	....	....	....	....	....	....	....	....	....	....
Western Ky.[1]	.82	.57	.42	.62	.95	.85	.72	82	1.07	...	1.18	....	....
Mid'd, Mich.[2]	.95	...	[7].75	....	.75	.90	.80	...	.90	....	....	$1.02	....
Somerset, Ky.[3]	.65	.45	.50	.60	.75	.88	.77	....	....	$1.12	....	1 23	....
Hart Co., Ky.[4]	.85	.85	....	....	1.00	1.00	85	....	....	1.07	....	....	$1.18
Muskegon[5]	.95	....	....	....	....	....	....	....	....	....	....	....	....

[1]Posted by Ohio Oil Co.

[2]Posted by Pure Oil Co.

[3]Purchased by Ashland Refining Co., Ashland, Ky., and delivered through its own pipe line.

[4]Posted by Stoll Refining Co.

[5]Posted by Old Dutch Refining Co., Naph-Sol Refining Co. paying Mid-Continent gravity. scale. Beginning January 18 both companies posted: Below 29 degrees, 51 cents, with 2 cents added for each degree upward to 40 and above at 75 cents. Beginning March 27 all purchasers paid $1.

[6]Posted January 10.

[7]Posted May 8.

CALIFORNIA

STANDARD OIL CO. OF CALIFORNIA*

(For current purchases of crude at the well, unless otherwise specified. All gravities above those quoted take highest price offered in that field.)

Gravity—	Signal Hill				Seal Beach, Alamitos Heights				Huntington Beach				Inglewood				Playa Del Rey				Olinda-Brea Canyon			
	Jan. 1	Mar. 5	June 26	Sept. 6	Jan. 1	Mar. 5	June 26	Sept. 6	Jan. 1	Mar. 5	June 26	Sept. 6	Jan. 1	Mar. 5	June 26	Sept. 6	Jan. 1	Mar. 5	June 26	Sept. 6	Jan. 1	Mar. 5	June 26	Sept. 6
14-14.9	$.65	$.55	$.55	$.65	$.65	$.55	$.55	$.65	$.65	$.55	$.55	$.65	$.65	$.55	$.55	$.65	$.65	$.55	$.55	$.65	$.65	$.55	$.55	$.65
15-15.9	.65	.55	.55	.65	.65	.55	.55	.65	.65	.55	.58	.69	.65	.55	.58	.69	.65	.55	.55	.66	.65	.55	.68	.69
16-16.9	.65	.55	.55	.66	.65	.55	.55	.65	.65	.55	.60	.72	.65	.55	.61	.73	.65	.55	.58	.69	.65	.55	.61	.73
17-17.9	.65	.55	.57	.69	.65	.55	.55	.65	.65	.58	.63	.75	.65	.58	.64	.76	.65	.58	.61	.73	.65	.58	.64	.76
18-18.9	.65	.57	.60	.72	.65	.55	.56	.65	.65	.61	.65	.78	.65	.61	.67	.80	.65	.60	.64	.76	.65	.61	.67	.79
19-19.9	.65	.59	.63	.75	.65	.57	.60	.65	.65	.63	.68	.81	.65	.64	.70	.83	.65	.62	.67	.80	.66	.64	.69	.82
20-20.9	.69	.61	.66	.78	.69	.59	.63	.68	.69	.64	.71	.83	.71	.67	.73	.87	.69	.64	.70	.83	.69	.66	.72	.85
21-21.9	.74	.63	.69	.81	.74	.62	.67	.72	.74	.66	.73	.86	.77	.69	.77	.90	.74	.66	.73	.87	.74	.68	.75	.88
22-22.9	.79	.65	.71	.84	.79	.64	.70	.76	.79	.68	.76	.89	.82	.71	.80	.94	.78	.69	.76	.90	.79	.70	.77	.92
23-23.9	.84	.67	.74	.88	.84	.67	.73	.81	.84	.70	.78	.92	.88	.73	.83	.97	.82	.71	.79	.94	.84	.72	.80	.95
24-24.9	.89	.69	.77	.91	.89	.69	.77	.85	.89	.72	.81	.95	.92	.75	.86	1.01	.86	.73	.82	.97	.89	.73	.83	.98
25-25.9	.93	.71	.80	.94	.93	.72	.80	.89	.93	.74	.83	.98	....	....	....	....	.91	.75	.85	1.00	.93	.75	.85	1.01
26-26.9	.97	.73	.82	.97	.97	.74	.83	.93	.97	.75	.86	1.01	....	....	....	....	.96	.77	.88	1.04	.97	.77	.88	1.04
27-27.9	1.00	.75	.85	1.00	....	.76	.87	.98	....	.77	.88	1.04	....	....	....	....	....	....	....	....	1.00	.79	.97	1.07
28-28.9	1.03	.77	.88	1.03	....	.79	.90	1.02	....	.79	.91	1.07	....	....	....	....	....	....	....	....	1.03	.81	.94	1.10
29-29.9	1.06	.79	.90	1.06	....	.81	.93	1.05	....	.81	.93	1.09	....	....	....	....	....	....	....	....	....	....	....	....
30-30.9	1.09	.81	.93	1.09	....	.84	.97	1.10	....	.83	.96	1.12	....	....	....	....	....	....	....	....	....	....	....	....
31-31.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
32-32.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
33-33.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
34-34.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

Gravity—	Torrance				Richfield				Coyote Hills				Santa Fe Springs				Midway-Sunset, Elk Hills, Buena Vista Hills				Lost Hills			
	Jan. 1	Mar. 5	June 26	Sept. 6	Jan. 1	Mar. 5	June 26	Sept. 6	Jan. 1	Mar. 5	June 26	Sept. 6	Jan. 1	Mar. 5	June 26	Sept. 6	Jan. 1	Mar. 5	June 26	Sept. 6	Jan. 1	Mar. 5	June 26	Sept. 6
14-14.9	$.65	$.55	$.55	$.65	$.65	$.55	$.55	$.65	$.65	$.55	$.55	$.65	....	....	....	....	$.55	$.49	$.52	$.57	$.55	$.49	$.52	$.57
15-15.9	.65	.55	.55	.66	.65	.55	.55	.65	.65	.55	.55	.65	....	....	....	....	.55	.49	.52	....	.55	.49	.52	....
16-16.9	.65	.55	.57	.69	.65	.55	.55	.67	.65	.55	.55	.65	....	....	....	....	.55	.49	.52	....	.55	.49	.52	....
17-17.9	.65	.57	.60	.72	.65	.56	.59	.70	.65	.55	.57	.68	....	....	....	....	.55	.49	.52	....	.55	.50	.53	....
18-18.9	.65	.59	.63	.75	.65	.58	.62	.74	.65	.57	.60	.71	....	....	....	....	.55	.49	.52	.61	.55	.52	.56	.61
19-19.9	.65	.61	.65	.78	.65	.61	.66	.78	.65	.59	.63	.74	....	....	....	....	.55	.49	.54	.64	.55	.54	.59	.65
20-20.9	.69	.62	.68	.81	.69	.63	.69	.82	.65	.61	.65	.78	....	....	....	....	.59	.52	.57	.67	.59	.56	.62	.69
21-21.9	.74	.64	.70	.83	.74	.66	.72	.85	.66	.63	.68	.81	....	$.57	$.60	$.72	.63	.55	.61	.70	.63	.58	.65	.73
22-22.9	.79	.66	.73	.85	.79	.68	.75	.89	.70	.65	.71	.84	....	.59	.64	.76	.69	.57	.65	.73	.69	.60	.68	.76
23-23.9	.84	.68	.75	.89	.84	.70	.78	.93	.76	.67	.73	.87	....	.62	.67	.79	.75	.60	.69	.77	.75	.62	.70	.79
24-24.9	.89	.70	.78	.92	.89	.73	.82	.97	.81	.69	.76	.90	$.73	.64	.70	.82	.81	.63	.72	.81	.81	.63	.73	.82
25-25.9	.93	.72	.80	.95	.93	.75	.85	1.00	.86	.71	.79	.93	.79	.66	.73	.87	.87	.66	.76	.85	.87	.65	.76	.85
26-26.9	....	.73	.83	.98	....	.77	.88	1.04	.90	.72	.82	.96	.84	.69	.76	.90	.92	.68	.80	.89	.91	.67	.79	.88
27-27.9	....	....	....	....	....	.80	.92	1.08	.94	.74	.84	.99	.89	.71	.80	.94	.97	.71	.83	.93	.94	.69	.81	.91
28-28.9	....	....	....	....	....	.82	.95	1.11	.98	.76	.87	1.02	.94	.73	.83	.98	1.02	.74	.87	.97	.99	.71	.84	.94
29-29.9	....	....	....	....	....	.84	.98	1.15	1.02	.78	.90	1 05	.98	.76	.86	1.01	1.07	.76	.91	1.01	1.02	.73	.87	.97
30-30.9	....	....	....	....	....	....	....	....	1.05	.80	.93	1.09	1.02	.78	.89	1.05	1.12	.79	.95	1.05	1.05	.75	.89	1.00
31-31.9	....	....	....	....	....	....	....	....	....	.82	.95	1.12	1.06	.80	.92	1.08	....	.82	.98	1.09	....	....	....	....
32-32.9	....	....	....	....	....	....	....	....	....	.84	.98	1.15	1.10	.83	.96	1.12	....	.85	1.02	1.13	....	....	....	....
33-33.9	....	....	....	....	....	....	....	....	....	.86	1.01	1.18	1.14	.85	.99	1.16	....	.87	1.06	1.17	....	....	....	....
34-34.9	....	....	....	....	....	....	....	....	....	.88	1.03	1.21	1.18	.87	1.02	1.19	....	....	....	....	....	....	....	....
35-35.9	....	....	....	....	....	....	....	....	....	....	....	....	1.22	.90	1.05	1.23	....	....	....	....	....	....	....	....
36-36.9	....	....	....	....	....	....	....	....	....	....	....	....	....	.92	1.08	1.26	....	....	....	....	....	....	....	....
37-37.9	....	....	....	....	....	....	....	....	....	....	....	....	....	.94	1.11	1 30	....	....	....	....	....	....	....	....
38-38.9	....	....	....	....	....	....	....	....	....	....	....	....	....	.96	1.14	1.34	....	....	....	....	....	....	....	....

Gravity—	Athens, Rosecrans, Dominguez				Montebello				Wheeler Ridge				Coalinga				Whittier-La Habra				Elwood Terrace (f.o.b. ship)			
	Jan. 1	Mar. 5	June 26	Sept. 6	Jan. 1	Mar. 5	June 26	Sept. 6	Jan. 1	Mar. 5	June 26	Sept. 6	Jan. 1	Mar. 5	June 26	Sept. 6	Jan. 1	Mar. 5	June 26	Sept. 6	Jan. 1	Mar. 5	June 26	Sept. 6
14-14.9	....	....	....	....	$.65	$.55	$.55	$.65	$.55	$.49	$.52	$.57	$.55	$.49	$.52	$.57	$.65	$.55	$.55	$.65	....	....	....	....
15-15.9	....	....	....	....	.65	.55	.55	.65	.55	.49	.52	.57	.55	.49	.52	....	.65	.55	.55	.65	....	....	....	....
16-16.9	....	....	....	....	.65	.55	.55	.65	.55	.49	.52	.57	.55	.49	.52	....	.65	.55	.57	.68	....	....	....	....
17-17.9	....	....	....	....	.65	.55	.55	.65	.55	.49	.52	.57	.55	.49	.52	....	.65	.57	.60	.71	....	....	....	....
18-18.9	....	....	....	....	.65	.55	.55	.65	.55	.49	.52	.58	.55	.49	.52	.59	.65	.59	.62	.74	....	....	....	....
19-19.9	....	....	....	....	.65	.55	.55	.65	.55	.49	.52	.61	.55	.49	.52	.62	.65	.61	.65	.78	....	....	....	....
20-20.9	....	....	....	....	.65	.55	.55	.66	.57	.49	.52	.64	.59	.49	.53	.65	.68	.63	.68	.81	....	....	....	....
21-21.9	....	....	....	....	.67	.55	.58	.69	.60	.50	.55	.67	.62	.51	.56	.68	.72	.65	.71	.84	....	....	....	....
22-22.9	....	....	....	....	.70	.57	.60	.72	.63	.52	.57	.70	.65	.53	.59	.72	.77	.67	.74	.87	....	....	....	....
23-23.9	....	....	$.68	$.85	.73	.60	.64	.76	.66	.54	.60	.73	.68	.55	.61	.75	.83	.69	.76	.90	....	....	....	....
24-24.9	$.82	$.65	.71	.86	.76	.62	.67	.80	.69	.56	.63	.76	.72	.57	.64	.78	.89	.71	.79	.93	....	....	....	....
25-25.9	.93	.68	.75	.90	.80	.65	.71	.85	.72	.58	.66	.79	.75	.59	.67	.81	....	....	....	....	....	....	....	....
26-26.9	.97	.70	.79	.94	....	.68	.75	.89	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
27-27.9	1.00	.72	.82	.97	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
28-28.9	1.03	.75	.86	1.01	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
29-29.9	1.06	.78	.89	1.04	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
30-30.9	1.09	.81	.93	1.08	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
31-31.9	1.12	.83	.97	1.12	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
32-32.9	1.15	.86	1.00	1.15	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
33-33.9	....	.86	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$1.04	$.83	$.91	$1 03
34-34.9	....	.86	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.10	.85	.94	1.06
35-35.9	....	.86	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.16	.87	.97	1.09
36-36.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.22	.89	1 03	1.12
37-37.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.28	.91	1.03	1.15

*The Texas Co., January 1, 1933, was paying same prices as the Standard Oil Co. in Signal Hill, Alamitos Heights, Huntington Beach, Torrance, Richfield, Montebello, North Whittier and Santa Fe Springs.

*The Union Oil Co., January 1, 1933, was paying the same price as the Standard Oil Co. in the Signal Hill, Alamitos Heights, Seal Beach, Huntington Beach, Athens, Rosecrans, Dominguez, Torrance, Santa Fe Springs, Playa Del Rey, Coyote, Olinda, Brea Canyon, Richfield and Montebello. In Coalinga, Lost Hills, Kern River, McKittrick, Midway-Sunset, Elk Hills and Buena Vista Hills the Union Oil Co. met the Standard Oil Co.'s prices from 14 gravity upward, but posted a price of 50 cents for oil 11 to 13.9 degrees in gravity.

*General Petroleum Co., January 1, 1933, was paying the same prices as the Standard Oil Co. in Rosecrans, Signal Hill, Alamitos Heights, Santa Fe Springs, Inglewood, Torrance, Brea Canyon and Olinda, up to 25.9 degrees; Richfield, Midway-Sunset, Kern River, Mount Poso, Round Mountain and Coalinga and posted in Rincon as follows: 22-22.9 degrees, 68 cents; 23-23.9 degrees, 73 cents; 24-24.9 degrees, 78 cents; 25-25.9 degrees, 82 cents; 26-26.9 degrees, 86 cents; 27-27.9 degrees, 89 cents; 28-28.9 degrees, 92 cents; 29-29.9 degrees, 95 cents; 30 degrees and over, 98 cents. In Rosecrans, General Petroleum Co. pays 65 cents for 14 to 19.9 gravity oil; 20-20.9 degrees, 69 cents; 21-21.9 degrees, 74 cents; 22-22.9 degrees, 79 cents; 23-23.9 degrees, 85 cents, and Standard's prices for oil of higher gravity.

*Associated Oil Co., January 1, 1933, was paying same prices as the Standard Oil Co. in Signal Hill, Huntington Beach, Seal Beach, Alamitos Heights, Richfield, Torrance, Inglewood, Athens, Rosecrans, Dominguez, Santa Fe Springs, McKittrick, Kern River, Midway-Sunset, Elk Hills, Buena Vista Hills, Lost Hills, Belridge and Coalinga.

*Kettleman Hills—The Union Oil Co., January 1, 1933, was paying for 33-33.9 gravity oil 91 cents; 34-34.9 degrees, 93 cents; 35-35.9 degrees, 95 cents; 36-36.9 degrees, 97 cents; 37-37.9 degrees, 99 cents; 38-38.9 degrees, $1.01; 39 degrees and over, $1.03. Standard Oil Co., Associated Oil Co. and General Petroleum Co. adopted same price schedule.

*Santa Paula—The Union Oil Co. and the Texas Co., January 1, 1933, were paying as follows: 14 degrees to 19.9 degrees, 66 cents; 20-20.9 degrees, 69 cents; 21-21.9 degrees, 72 cents; 22-22.9 degrees, 75 cents; 23-23.9 degrees, 78 cents; 24-24.9 degrees, 81 cents; 25-25.9 degrees, 84 cents; 26-26.9 degrees, 87 cents; 27-27.9 degrees, 90 cents; 28-28.9 degrees, 93 cents; 29 degrees and above, 99 cents.

*Shiells Canyon and South Mountain—The Texas Co. posted same prices as in Santa Paula.

*Orcutt—The Union Oil Co., January 1, 1933, was paying as follows: 16 degrees to 19.9 degrees, 55 cents; 20-20.9 degrees, 59 cents; 21-21.9 degrees, 63 cents; 22-22.9 degrees, 69 cents; 23-23.9 degrees, 75 cents; 24-24.9 degrees, 81 cents; 25-25.9 degrees, 87 cents; 26 degrees and above, 92 cents.

*Playa Del Rey—Subject to a field gathering charge of 5 cents per barrel.

*Newhall, McKittrick and Kern River—Standard Oil Co. posted 55 cents for oil of all grades.

*Ventura Avenue—General Petroleum Co. and Associated Oil Co., January 1, 1933, were paying as follows: 22-22.9 degrees, 72 cents; 23-23.9 degrees, 77 cents; 24-24.9 degrees, 82 cents; 25-25.9 degrees, 86 cents; 26-26.9 degrees, 90 cents; 27-27.9 degrees, 93 cents; 28-28.9 degrees, 96 cents; 29-29.9 degrees, 99 cents; 30 degrees and over, $1.02.

Potrero—Associated Oil Co., January 1, 1933, was paying same prices as paid by all companies in Athens, Rosecrans and Dominguez.

PRICE CHANGES OF MARCH 5

Signal Hill—Met on same date by the Texas Co., Union Oil Co., General Petroleum Co. and Associated Oil Co.

Huntington Beach—The Texas Co., Union Oil Co., General Petroleum Co. and Associated Oil Co. schedules stop at 26-26.9 degrees, 75 cents.

Seal Beach, Alamitos Heights—The Texas Co. met all prices; Union Oil Co., General Petroleum Co. and Associated Oil Co. schedules stop at 26-26.9 degrees, 75 cents.

Athens, Rosecrans, Dominguez—Union Oil Co. schedule stops at 35-35.9 degrees, posting 32-32.9 degrees, 85 cents; 33-33.9 degrees, 87 cents; 34-34.9 degrees, 89 cents; 35-35.9 degrees, 90 cents. Associated Oil Co. met Standard Oil Co. schedule; General Petroleum Co. met Standard Oil Co. prices, stopping at 32-32.9 degrees at 86 cents.

Torrance—Met by the Texas Co. Met by Associated Oil Co., General Petroleum Co. and Union Oil Co., up to 25-25.9 degrees at 75 cents.

Inglewood—Met by Associated Oil Co. and General Petroleum Co.

Playa Del Rey—(Prices subject to 5 cents per barrel gathering charge.) Met by Union Oil Co. schedule starting at 19 gravity.

Olinda-Brea Canyon—Met by Union Oil Co. Met by General Petroleum Co., up to 25-25.9 degrees, at 75 cents.

Santa Fe Springs—Met by the Texas Co., General Petroleum Co., Union Oil Co. and Associated Oil Co.; schedules start at 24-24.9 degrees, 64 cents, and end at 35-35.9 degrees, 90 cents.

East Coyote—Effective March 5, Union Oil Co.: 14 to 16.9 degrees, 55 cents; 17-17.9 degrees, 57 cents, with 2 cents added for each degree upward to 24-24.9 degrees, at 71 cents.

Richfield—Met by the Texas Co.; met by Union Oil Co. up to 25-25.9 degrees, at 75 cents.

Montebello—Met by Union Oil Co. up to 25-25.9 degrees, at 65 cents.

Kern River, Mount Poso, McKittrick, Sunset, Midway, Elk Hills, Buena Vista Hills—Effective March 5, Union Oil Co.; 11-13.9 degrees, 44 cents; 14 to 19.9 degrees, 49 cents; 20-20.9 degrees, 52 cents; 21-21.9 degrees, 55 cents; 22-22.9 degrees, 57 cents; 23-23.9 degrees, 60 cents; 24-24.9 degrees, 63 cents; 25-25.9 degrees, 66 cents; 26-26.9 degrees, 68 cents; 27-27.9 degrees, 71 cents; 28-28.9 degrees, 74 cents; 29-29.9 degrees, 76 cents; 30-30.9 degrees, 79 cents. Associated Oil Co. schedule in Midway, Elk Hills and Buena Vista Hills starts at 11 to 13.9 degrees, 40 cents; same as Union Oil Co. schedule from 14 to 29.9 degrees; 30-30.9 degrees, 79 cents.

Montebello—Met by Union Oil Co. up to 25-25.9 degrees, at 65 cents; the Texas Co. schedule in Montebello and North Whittier, 14 to 21.9 degrees, 55 cents; 22-22.9 degrees, 57 cents; 23-23.9 degrees, 60 cents; 24-24.9 degrees, 62 cents; 25-25.9 degrees, 65 cents; 26-26.9 degrees, 68 cents.

Santa Paula—Union Oil Co., March 5, 14 to 19.9 degrees, 55 cents; 20-20.9 degrees, 56 cents, with 1 cent added for each degree upward to 25-25.9 degrees, at 61 cents, and then 2 cents added for each degree upward to 30-30.9 degrees, at 71 cents. The Texas Co. posts similar schedule in Santa Paula and Shiells Canyon.

Lost Hills-Belridge—Met by Associated Oil Co. and Union Oil Co., with Union Oil Co. paying 44 cents for 11 to 13.9 degrees gravity.

Coalinga—Met by Union Oil Co. and Associated Oil Co.

Ventura Avenue—Associated Oil Co., March 5, 22-22.9 degrees, 58 cents, with 2 cents added for each degree up to and including 30-30.9 degrees at 74 cents.

Orcutt—Union Oil Co., effective March 5: From 16 to 19.9 degrees, 49 cents; 20-20.9 degrees, 52 cents; 21-21.9 degrees, 55 cents; 22-22.9 degrees, 57 cents; 23-23.9 degrees, 60 cents; 24-24.9 degrees, 63 cents; 25-25.9 degrees, 66 cents; 26-26.9 degrees, 68 cents.

Newhall, McKittrick and Kern River—Standard Oil Co. of California, 55 cents for all grades, effective March 5.

Kettleman Hills—Effective March 5, Standard Oil Co., Union Oil Co. and Associated

Oil Co.: 33 to 33.9 degrees, 66 cents, with 2 cents added for each degree upward to 39-39.9 degrees at 78 cents.

PRICE CHANGES OF JUNE 26

Note—The Union Oil Co. met all Standard Oil Co. of California prices in fields where both companies purchase, and posted as follows in East Coyote: 14 to 15.9 degrees, 55 cents; 16-16.9, 57 cents; 17-17.9, 60 cents; 18-18.9, 62 cents; 19-19.9, 65 cents; 20-20.9, 68 cents; 21-21.9, 71 cents; 22-22.9, 74 cents; 23-23.9, 76 cents; 24 degrees and over, 79 cents. Santa Paula, 14 to 18.9 degrees, 55 cents; 19-19.9, 57 cents; 20-20.9, 60 cents; 21-21.9, 62 cents; 22-22.9, 65 cents; 23-23.9, 67 cents; 24-24.9, 70 cents; 25-25.9, 72 cents; 26-26.9, 75 cents; 27-7.9, 77 cents; 28-28.9, 80 cents; 29-29.9, 83 cents; 30 degrees and over, 85 cents. Orcutt, 16 to 18.9 degrees, 52 cents; 19-19.9, 54 cents; 20-20.9, 57 cents; 21-21.9, 61 cents; 22-22.9, 65 cents; 23-23.9, 69 cents; 24-24.9, 72 cents; 25-25.9, 76 cents; 26 degrees and over, 80 cents. Lost Hills and Belridge schedule same as that of the Standard Oil Co. of California in Lost Hills; Mount Poso, Kern River, McKittrick schedule same as Standard's Newhall, McKittrick and Kern River schedule except that Union Oil Co. posts 47 cents for 11 to 13.9 degrees, inclusive. Union Oil Co.'s schedule also posts 47 cents per barrel for 11 to 13.9 gravity in Coalinga, Midway-Sunset, Elk Hills and Buena Vista Hills. Shell Oil Co. and Associated Oil Co. met the Standard Oil Co. of California prices.

Kettleman Hills—33-33.9 degrees, 76 cents; 34-34.9, 78 cents; 35-35.9, 80 cents; 36-36.9, 82 cents; 37-37.9, 84 cents; 38-38.9, 86 cents; 39 degrees and over, 88 cents.

Newhall, McKittrick and Kern River—14 degrees to 19 degrees and over, 52 cents.

PRICE CHANGES OF SEPTEMBER 6

Newhall—14 degrees and over, 57 cents.

McKittrick and Kern River—14 degrees and over, 57 cents.

Kettleman Hills—33-33.9 degrees, 93 cents; 34-34.9 degrees, 96 cents; 35-35.9 degrees, 99 cents; 36-36.9 degrees, $1.02; 37-37.9 degrees, $1.05; 38-38.9 degrees, $1.08; 39 degrees and over, $1.11.

GULF COAST

GULF COAST, GRADE B, REFUGIO LIGHT AND LOCKPORT*

Gravity—	Jan. 1[1]	Jan. 1[2]	Jan. 19[3]	Jan. 20[4]	Mar. 6[5]	May 2[6]	June 19[6]	June 24[6]	Aug. 25[10]	Aug. 8[11]	Sept. 8[12]	Sept. 29[12]	Sept. 29[14]
Below 20	$.58	$.65	$.55	$.32	$.45	$.30	$.32	$.32	$.42	$.42	$.69	$.69	$.82	$.82
20-20.9	.60	.65	.55	.34	.45	.30	.34	.34	.44	.44	.71	.71	.84	.84
21-21.9	.62	.65	.55	.36	.45	.30	.36	.36	.46	.46	.73	.73	.86	.86
22-22.9	.64	.67	.56	.38	.46	.30	.38	.38	.48	.48	.75	.75	.88	.88
23-23.9	.66	.69	.57	.40	.47	.30	.40	.40	.50	.50	.77	.77	.90	.90
24-24.9	.68	.71	.58	.42	.48	.30	.42	.42	.52	.52	.79	.79	.92	.92
25-25.9	.70	.73	.59	.44	.49	.30	.44	.44	.54	.54	.81	.81	.94	.94
26-26.9	.72	.75	.60	.46	.50	.30	.46	.46	.56	.56	.83	.83	.96	.96
27-27.9	.74	.77	.61	.48	.51	.30	.48	.48	.58	.58	.85	.85	.98	.98
28-28.9	.76	.79	.62	.50	.52	.30	.50	.50	.60	.60	.87	.87	1.00	1.00
29-29.9	.78	.81	.63	.52	.53	.30	.52	.52	.62	.62	.89	.89	1.02	1.02
30-30.9	.80	.83	.64	.54	.54	.30	.54	.54	.64	.64	.91	.91	1.04	1.04
31-31.9	.82	.85	.65	.56	.55	.30	.56	.55	.66	.65	.93	.92	1.06	1.05
32-32.9	.84	.87	.66	.58	.56	.30	.58	.56	.68	.66	.95	.93	1.08	1.06
33-33.9	.86	.89	.67	.60	.57	.30	.60	.57	.70	.67	.97	.94	1.10	1.07
34-34.9	.88	.91	.68	.62	.58	.30	.62	.58	.72	.68	....	.95	1.12	1.08
35-35.9	.88	.91	.69	.62	.59	.30	.62	.59	.72	.69	....	.96	1.12	1.09
36-36.9	.88	.91	.70	.62	.60	.30	.62	.60	.72	.70	....	.97	1.12	1.10
37-37.9	.88	.91	.71	.62	.61	.30	.62	.61	.72	.71	....	.98	1.12	1.11
38-38.9	.88	.91	.72	.62	.62	.30	.62	.62	.72	.72	....	.99	1.12	1.12
39-39.9	.88	.91	.73	.62	.63	.30	.62	.63	.72	.73	....	1.00	1.12	1.13
40 and over	.88	.91	.74	.62	.64	.30	.62	.64	.72	.74	....	1.01	1.12	1.14

*Refugio heavy, posted by Humble Oil & Refining Co., January 1, 65 cents; January 20, 45 cents; May 2, 30 cents; June 19, 45 cents; August 24, 55 cents; September 8, 75 cents; September 20, 85 cents.

Tomball, Tex., posted by Humble Oil & Refining Co., June 19, 65 cents; August 2, 65 cents; August 24, 75 cents; September 8, $1.05; September 20, $1.15.

Livingston, Tex., posted by Shell Petroleum Corp., June 30, 50 cents; August 25, 55 cents; September 20, $1.

Greta, posted by Humble Oil & Refining Co., August 24, 55 cents; August 25, 60 cents; September 8, 75 cents; September 20, 85 cents.

[1]Effective December 15, 1932, by Humble Oil & Refining Co. in Goose Creek, Hull, Liberty, Orange, Pierce Junction, Mykawa, Moss Bluff, Raccoon Bend, Barbers Hill, Sour Lake, Spindletop, Sugarland, West Columbia, Humble Rabbs Ridge and Refugio light oil. Sinclair Prairie Oil Marketing Co. in Boling, Barbers Hill and West Columbia, December 15. Magnolia Petroleum Co. in Lockport and Iowa, Louisiana, January 1, 1933.

[2]Texas Co., effective December 30, 1932.

[3]Texas Co., effective January 19.

[4]Humble Oil & Refining Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Sun Oil Co., effective January 20.

[5]Texas Co., effective March 6.

[6]May 2 Humble Oil & Refining Co. withdrew gravity price schedule. Texas Co. and Shell Petroleum Corp. did the same May 3, Gulf Pipe Line Co. May 5 and Magnolia Petroleum Co. May 8.

[7]Sinclair Prairie Oil Market Co., effective June 17. Humble Oil & Refining Co. and Gulf Pipe Line Co., effective June 19.

[8]Texas Co., effective June 19. Magnolia Petroleum Co. June 20.

Jennings, La. (posted by Gulf Refining Co.)—January 1, 60 cents; January 20, 35 cents; May 5, 25 cents; June 19, 35 cents.

Cameron Meadows, La. (posted by Magnolia Petroleum Co.)—January 1, below 20 gravity, 48 cents; 20-20.9, 50 cents, with 2 cents added for each degree upward to 34 and above at 78 cents. January 20, below 20 gravity, 32 cents; 20-20.9, 24 cents, with 2 cents added for each degree upward to 34 and above at 52 cents.

[9]Posted by Humble Oil & Refining Co. Effective August 25, Gulf Pipe Line Co., Magnolia Petroleum Co., Sun Oil Co., Sinclair Prairie Oil Marketing Co.

[10]Posted by Texas Co.

[11]Posted by Humble Oil & Refining Co., Gulf Pipe Line Co., Pure Oil Co., Magnolia Petroleum Co., Sinclair Prairie Oil Marketing Co. Effective same date, Sun Oil Co. posted below 20 degrees, 72 cents with 2 cents added for each degree up to 40 and over at $1.09. Effective same date, Magnolia Petroleum Co. posted Lockport below 20 degrees 66 cents with 2 cents added for each degree up to 34 and above at 86 cents.

[12]Posted by the Texas Co.

[13]Posted by Humble Oil & Refining Co., Gulf Pipe Line Co., Shell Petroleum Corp., Pure Oil Co., Sinclair Prairie Oil Marketing Co. On October 2 Magnolia Petroleum Co. posted Lockport, La.: 20-20.9 degrees, 84 cents, with 2 cents added for each degree upward to 34 and above at $1.12, and in Cameron Meadows and Iowa, La.: Below 20 degrees 72 cents with 2 cents added for each degree up to 30 and above at $1.02. These prices were 2 cents higher than Magnolia prices posted on September 29.

[14]Posted by the Texas Co.

CANADIAN FIELDS

	Jan. 1	Jan. 24	Aug. 25	Sept. 9	Sept. 11
Petrolia*	$1.75	....	$1.85	$2.10	....
Oil Springs†	1.82	....	1.92	2.17	....
Turner Valley, Alta.:					
31-35.9	....	$1.41	....	....	....
36-39.9	....	1.90	....	....	....
40-44.9	1.56	....	....	....	....
45-49.9	2.18	....	....	....	....
50 and above	2.80	2.41	....	....	$2.93

*Imperial Oil, Ltd. †Imperial Oil, Ltd. and Regal Oil & Refining Co.

EASTERN FIELDS

	Jan. 1	Jan. 21	May 9	May 22	June 17	June 26	July 6	July 17	July 18	July 26	Aug. 11	Aug. 30	Sept. 6	Oct. 4
Pennsylvania Grade oil in National Transit lines (Pa.)[1]	$1.72	$1.47	$1.27	$1.37	$1 47	$1.57	$1.70	$1.85	....	$2.00	$2.10	$2.25	$2.35	$2.45
Pennsylvania Grade oil in Southwest Pennsylvania lines (W. Va.)[1]	1 42	1.17	.97	1.07	1.17	1.27	1.37	1.52	....	1.67	1.77	2.02	2.12	....
Pennsylvania Grade oil in Eureka lines (Pa.)[1]	1.37	1.12	.92	1.02	1.12	1.22	1.32	1.47	....	1.62	1.72	1.97	2.07	....
Pennsylvania Grade oil in Buckeye lines (Ohio)[1]	1.22	.97	.77	.90	.97	1.07	1.17	1.32	....	1.47	1 57	1.82	1.92	....
Corning Grade oil in Buckeye lines (Ohio), 25-cent grade[1]	.85	.70	4.50	.50	5.60	6.70	....	....	$0.90	95	.85	.95	1.20	1.32
Cabin Creek, W. Va.[2]	1.37	1.12	.92	1.02	1.12	1.22	1.32	1.47	1.47	1.62	1.72	1.97	2.07	2.17
Bradford Hollow, W. Va.[2]	1.37	1.12	.92	1.02	1.12	1.22	1.32	1.47	1.47	1 62	1.72	1.97	2.07	2.17
Kelly's Creek, W. Va.[2]	1.37	1.12	.92	1.02	1.12	1.22	....	....	....	....	....	....	....	2.17
Bradford district[3]	1.72	1.47	1.27	1.37	1.47	1.57	1.70	1.85	....	2.00	2.10	2.25	2.35	2.45
Allegany district[3]	1.72	1.47	1.27	1.37	1.47	1 57	1.70	1.85	....	2.00	2.10	2.25	2.35	2.45

[1]Posted by Joseph Seep Purchasing Agency.
[2]Posted by Pure Oil Co.
[3]Posted by Tide Water Pipe Line Co.
[4]Posted May 8.
[5]Posted June 19.
[6]Posted June 27.

SALT CREEK, WYOMING[1]

	Jan. 1	Jan. 18	May 6	June 17	July 8	Aug. 26	Sept. 7	Sept. 9	Sept. 29
Below 29	$.53	$.28	$.25	$.28	$.38	$.48	$.58	$.73	$.84
29-29.9	.55	.30	.25	.30	.40	.50	.60	.75	.86
30-30.9	.57	.32	.25	.32	.42	.52	.62	.77	.88
31-31.9	.59	.34	.25	.34	.44	.54	.64	.79	.90
32-32.9	.61	.36	.25	.36	.46	.56	.66	.81	.92
33-33.9	.63	.38	.25	.38	.48	.58	.68	.83	.94
34-34.9	.65	.40	.25	.40	.50	.60	.70	.85	.96
35-35.9	.67	.42	.25	.42	.52	.62	.72	.87	.98
36-36.9	.69	.44	.25	.44	.54	.64	.74	.89	1.00
37-37.9	.71	.46	.25	.46	.56	.66	.76	.91	1.02
38-38.9	.73	.48	.25	.48	.58	.68	.78	.93	1.04
39-39.9	.75	.50	.25	.50	.60	.70	.80	.95	1.06
40 and over	.77	.52	.25	.52	.62	.72	.82	.97	1.08

[1]Posted by Stanolind Oil & Gas Co.

ROCKY MOUNTAIN STATES

	Jan. 1	Jan. 8	May 17	June 8	July 25	Aug. 26	Aug. 9	Sept. 29	Sept. 29
Iles, light	$.65	$.40	[1]$.25	$.40	$.50	....	$.60	$.85	$.96
Iles, heavy	.50	.34	....	.34	.44	....	.54	.79	.90
Florence	.57	....	.25	.30	....	....	....	....	....
Dutton Creek, Wyo.	.59	.34	.25	.34	....	....	....	....	....
Rock Creek, Wyo.	.67	....	....	.52	.54	$.66	....	.91	....
Frannie, light	.51	.31	.25	.31	41	....	.51	.76	.87
Frannie, heavy	.41	.20	20	....	.30	....	.40	.57	.62
Big Muddy	.75	....	[2].25	45	.55	.65	....	.90	1.01
Grass Creek	.87	.62	....	....	.72	....	.82	1.07	....
Elk Basin	.87	.62	....	....	.72	....	.82	1.07	....
Osage	.93	.52	....	....	.42	....	....	....	....
Torchlight	....	.62	.35	.62	.72	....	.82	1.07	1.18
Greybull	.87	.62	.35	.62	.72	....	.82	1.07	1.18
Cat Creek	.87	....	[3].35	.62	....	....	....	....	....
Pondera	.60	....	....	.75	....	....	....	....	....
Sunburst	.75	....	[4].65	.80	.90	1.00	....	1.25	1.35
Hogback, N. Mex.	.80	.65	.50	.65	.75	....	.85	1 00	1.11

Maljamar, N. Mex., January 1, 45 cents; January 18, 25 cents; June 19, 35 cents; September 9, 60 cents; September 29, 70 cents. Artesia-Jackson, N. Mex., January 1, 50 cents; January 18, 30 cents, June 17, 35 cents; July 11, 45 cents; September 9, 60 cents; September 29, 70 cents; December 1, 75 cents. Lost Soldier, Wyo., January 1, 80 cents; July 8, 42 cents; August 28, 52 cents; September 8, 62 cents; September 30, 88 cents. Salt Creek, Wyo., followed Oklahoma price schedule of Stanolind Crude Oil Purchasing Co.

[1]Posted May 6, all grades. [2]Posted May 6 by Continental Oil Co., May 8 by Ohio Oil Co. [3]Posted May 6. [4]Posted May 9.

Note—Cat Creek, Hudson, Greybull, Hogback and Iles posted by Stanolind Oil & Gas Co. and remainder by Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin. Lost Soldier posted by Producers & Refiners Corp. Artesia-Jackson and Maljamar posted by Continental Oil Co. Fort Collins, Wellington, Orchard, Florence, Rattlesnake and Table Mesa posted by Continental Oil Co. Fort Collins, Wellington and Greasewood are on contract basis. Osage posted by Arro Oil & Refining Co.

Would Improve Arkansas River for Oil Shipment

WASHINGTON, D. C., Jan. 20.—Evidence to show that an economic support of the petroleum industry alone in Oklahoma and Mid-Continent fields was more than enough to justify development of the Arkansas River for barge line navigation from the Mississippi to Tulsa, was presented by a committee headed by N. R. Graham of Tulsa before the board of army engineers for rivers and harbors.

Mr. Graham, chairman of the Arkansas basin commission, department of PWA, joined with the Mississippi Valley association and the Arkansas Basin Association in placing the facts before the board, and had as main witnesses Col. Isham Randolph, engineering investigator of Chicago, and Theodore Brent, traffic counselor of New Orleans.

Colonel Randolph said he had checked his conclusions with those of the district engineers who made the last survey, and found the project could be built at a total cost of $164,000,000 instead of the original estimate of $243,000,000. One of the biggest savings was effected through cutting the cost of "bank protection" from $47,000,000 to $20,000,000. These new estimates were based on a 9-foot channel, and 110-foot by 600-foot locks on the Arkansas River. The locks from the mouth of the Verdigris to Tulsa, Colonel Randolph said, would be sufficient if only 110 feet by 475 feet.

"The United States engineering offices have long since designated this 473 miles above the mouth of the Arkansas as navigable," Colonel Randolph said.

"Our project estimates have been fair, its annual operating costs would be much less than its saving to the country, and surely it would serve no one but citizens of the United States, which is more than can be said of other waterway proposals."

Mr. Brent said the proposed waterway could be a factor in establishing cheaper transportation rates on crude oil to eastesn and midwestern refineries, even though pipe lines were now handling oil at approximately 50 per cent of railroad rates. He said nearly 8,000,000 tons of crude oil now shipped by independents could be diverted to this waterway, effecting a saving of over $2,000,000 per year.

"Surplus crude production could be transported by water to deficiency points of refining without making any other crude production points suffer a loss of demand," Mr. Brent said.

When Colonel Breden intimated that a saving in transportation cost was not possible in competition to the low pipe line rates, Mr. Brent showed there were existing contracts on the Mississippi River for crude oil at 1½ mills per ton-mile, and his survey had been based on getting 2½ mills per ton-mile for the waterway.

"Why, then, if it's cheaper to ship by water," asked Colonel Breden, "does an oil company send its crude all the way to these eastern points by pipe line, instead of transferring it to barges at the Mississippi?"

"For the simple reason that the Mississippi is not navigable for sizable boats above St. Louis," Mr. Brent replied. "There are no pipe lines crossing the Mississippi below St. Louis. And besides, the deficiency points of refining were at Baton Rouge, Wood River (St. Louis), Louisville and Latonia, Ky., and not in New Jersey."

Mr. Brent's summary showed that the project, tieing in with the Mississippi and Ohio Rivers would mean an annual public saving of $24,000,000, $14,000,000 of which would come directly from the Arkansas River development, and that it would receive enough commercial support to pay 8 per cent on $16,000,000 (more than operating cost), besides 5 per cent for depreciation.

Pipe Line Construction in 1933 Mostly of Short Stretches, Serving New Oil and Gas Fields

A surprising amount of pipe line work was done in 1933 but most of it was of short lines and extensions. Oil, natural gas, and natural gasoline lines all figured in the construction work of the year.

Pipe Lines in Oklahoma

Oklahoma Pipe Line Co. completed about 54 miles of pipe line between Cushing and Crescent, Okla. Ten miles of this was 6-inch pipe and 44 miles 8-inch pipe. At a point about 13 miles east of Crescent, an 8-inch lateral line was laid from the Crescent-Cushing pipe line to the Lucien Pool, south of Perry in Noble County.

All of the pipe used in these lines was reclaimed from old pipe lines laid in Kansas. The pipe was originally laid in 1918 and out of a total of 66 miles reclaimed, 55 miles was classified as "A" grade pipe and only 2 miles rejected as junk. The other 9 miles of pipe was considered "B" grade pipe suitable for use under certain conditions when properly coated.

The Oklahoma Pipe Line Co. also laid about 10 miles of 4, 6 and 8-inch pipe line from the Tatum Pool, in Carter County in southern Oklahoma, to connect with its station at Graham, Okla. This line was laid throughout the Tatum Field where it gathered the oil and then delivered it to the station.

Stanolind Pipe Line Co. laid 42 miles of 8-inch pipe from the Lucien Field, south of Perry in Noble County, to a point near Drumright in Creek County. Old pipe was used and most of it was secured from a line laid about 10 years ago in the vicinity of Wewoka, Okla. The pipe was cleaned, examined and checked and most of it was classified as "A" grade. It was taken up in 20-foot lengths and sent to the company's yards where it was welded into 40-foot lengths and hauled to the new location.

Kansas Pipe Lines

Stanolind Pipe Line Co. laid a 52-mile 6-inch pipe line from its pipe line serving the Ellis and Barton Counties, Kansas, to the Fairport Field in Russell County. This line was completed just after the close of 1933. The line was started at a point near Bushton in northwestern Rice County, running northwest to Gorham and then straight north to the old Russell County area.

Sinclair Prairie Oil Co. laid a 6-inch pipe line from a point near the old Florence Pool, in Marion County, extending about 22 miles to a point near Potwin, in Butler County, to connect with the main line. This line replaced another line laid about 12 years ago that was leaking some.

Sinclair Prairie Oil Co. also laid about 14 miles of 4-inch pipe to be used as a gasoline line from its Coffeyville, Kans., plant to join the Great Lakes Pipe Line Co.'s main line.

Shell Pipe Line Co. completed a line from the Hollow Pool in Harvey County to the Nikkell area in McPherson County, and also to the Burrton area in Reno County. The company's line formerly ended at the Ritz-Canton and Voshell Pools in McPherson County. The line was 4 and 6-inch pipe and the greatest distance was 15 miles.

Sunflower Refining Co. laid a 4-inch line to connect the Chase townsite wells with the main line system running from the Heiken, Breford and Holyrood areas. The line runs southeast through Lyons to the company's refinery. The line to the Chase townsite was approximately 5 miles long.

Skelly Oil Co. started laying a 6 and 8-inch pipe line from its main line near Burrton to a point near Partridge, a distance of 24 miles of 8-inch pipe, and from there about 30 miles of 6-inch pipe line was laid southwest to Cunningham Field, Kingman County. This is new pipe and a welded line. Pump stations were being installed near Burrton in Reno County and a terminal station at Cunningham. One pump station was sufficient to serve the present line requirements and later a station may be built at Partridge.

East, West and North Texas

Most of the pipe laid in West Texas in 1933 was put down by Humble Pipe Line Co., from the Penn Pool in Ector County to the Addis and Cowden areas, a short line to the Broderick and Calvert well in a new pool 5 miles north of the Penn Pool. The Cowden area had no outlet. The Addis area had a line to a loading rack on the Texas & Pacific Railroad. These connecting lines took about 24 miles of 6-inch pipe. A 14-mile 4-inch extension was also laid from the Cowden area in north Ector County to the Fuhrman and Deep Rock areas in Andrews County, the first outlet for those two small producing areas.

The Amber Crude Oil Purchasing Co. laid 4 miles of 2-inch line from the McMillan Pool to a loading rack on the Abilene & Southern Railway, giving the pool its third outlet.

P. A. Johnson laid a short line from his discovery well north of Mertzon in Irion County to a loading rack on the Santa Fe Railroad.

In the Wichita Falls district, the Standard Oil Field Supply Co. purchased 48 miles of 4 and 6-inch line laid several years ago from the American Refining Properties refinery at Wichita Falls to Duncan, Okla. Much of it was moved to East Texas to be relaid as gathering lines.

About 19,000 feet of gas line was laid from the Cook Pool, Shackelford County, to connect with a line of the Lone Star Gas Co. near Albany, taking gas for repressuring wells in the Cook Pool.

The Texas Co. laid 16 miles of 3-inch line to carry gasoline from its plant in western Foard County to a five-car loading rack on the Southern Pacific Railroad at Crowell. The company also laid a short line to connect the discovery well to Magnolia Pipe Line Co.'s main line.

In the Panhandle district, Shamrock Oil & Gas Co. laid 12 miles of 16 and 18-inch gathering line in Moore County to the Wheeler County line.

The Huber Petroleum Co., which has gasoline plants in the Panhandle, extended its gathering lines in Hutchinson County.

In East Texas, the Gregg-Tex Gasoline Corp. constructed around 50 miles of gathering lines. Hercules Gasoline Corp. laid many miles of lines. The Excelsior gasoline plant near London in Rusk County, laid about 40 miles of gathering lines.

The Humble Oil & Refining Co. started laying more gathering lines in Gregg and Rusk Counties during the last two months of the year.

Pan American Pipe Line Co., which formerly leased the combination 8 and 10-inch trunk line of Stanolind Pipe Line Co. from Mexia to Houston, erected more pumping equipment at Singleton, Easterly, Huffsmith and Bullock stations during the year to raise the capacity of that line to 60,000 bbls. per day from the former capacity of around 38,000 bbls.

Sinclair Prairie Pipe Line Co. constructed around 150 miles of 8-inch line to loop its trunk line from Mexia to Houston.

On the Gulf Coast

With the exception of Sinclair Prairie Pipe Line Co.'s new 12-inch line to the coast from Colonel's Station in Freestone County, there were no major lines laid during the year.

The Sinclair Prairie Pipe Line Co. relaid 140 miles of pipe taken up from the McLoud, Okla., to Coffeyville, Kans., system, increasing the company's carrying capacity to the coast by 45,000 bbls. The line followed part way the right of way of the Prairie-Pure 8-inch line but passed through the Conroe Field and thence to Huffman station, 26 miles north of Houston, from which the company has a 12-inch line, served by the Prairie-Pure line, to the Sinclair Refining Co.'s refinery at Sinco, east of Houston on the Ship Channel. The Prairie-Pure line extends from Mexia, through Huffman, to Smiths Bluff, south of Beaumont. It has a rated capacity of 35,000 bbls. which continues available for use of the Sinclair companies, which own a 50 per cent interest in it. By swinging through the Conroe Field, the line provides an additional outlet for that field, served by Humble Oil & Refining Co., Texas Pipe Line Co., Tide Water Pipe Line Co. and Channel Transport & Marketing Co.

Laying of the line was undertaken because of the expiration of a contract which the Sinclair company had with Stanolind Pipe Line Co. for the transportation of 25,000 bbls. daily through the latter's trunk line from North and East Texas to the coast. That line, originally owned by the Sinclair companies, had its terminus at the Sinclair refinery at Sinco, but has been extended from there to Texas City, where it serves Pan American Refining Corp.'s new 25,000-bbl. plant at that point. The Stanolind extension consisted of 31 miles of 12-inch pipe.

Stanolind Pipe Line Co. also engaged in another project on the coast consisting of the laying of 45 miles of 10-inch pipe from its Huffsmith station north of the new Tomball Field to Baytown. This line follows the right of way of the company's present trunk line to as far as Dawes Switch, approximately 8 miles northeast of Houston where the main line turns southward to the Sinclair refinery at Sinco.

Lines to Tomball Pool

The discovery of production at Tomball occasioned the laying of two other outlets, one by Humble Pipe Line Co. and the other by Magnolia Pipe Line Co. The Humble line, consisting of 13 miles of 8-inch pipe, extends from the field to Satsuma on the company's trunk system to the coast. Magnolia's line is made up of approximately 17 miles of 8-inch pipe. It extends northward to Conroe where it ties into the company's North Texas-Beaumont trunk system. A gathering system of 6, 8 and 10-inch pipe also was laid.

Three additional pipe lines also have been laid out of the Conroe Field this year. Tide Water Pipe Line Co. put in 18 miles of 8-inch pipe from the field to Humble, where it ties in with the Texas Pipe Line Co.'s line from Humble to Port Arthur. Sun Pipe Line Co. laid a similar 6-inch line to Humble, tieing in with its main line to the coast. Channel Transport & Marketing Co. laid approximately 45 miles of 8-inch line from the field to Norsworthy on the Ship Channel east of Houston where the American Petroleum Co. has storage and terminal facilities. Besides these lines, Texas Pipe Line Co. looped its 8-inch line from Conroe to Big Spring, a distance of 14 miles.

Livingston Line

Proving of production at Livingston, southern Polk County, was the incentive for Shell Pipe Line Co. laying a 6-inch line from the field to Goodrich, approximately 6 miles, where the line ties into the company's East Texas-Houston trunk line. A second line from the field has been laid by the Polk County Pipe Line Co., organized by the Gem Oil Co., a Josey interest, and Dick Schwab.

Pure Pipe Line Co. laid approximately 3 miles of 4-inch line from its new Louise Field in Wharton County to the G.H.&S.A. Railroad at the town of Louise where loading racks are being constructed.

Magnolia Pipe Line Co. put down ap-

(Continued on Page 100)

Modern Central Powers Do Not Require Special Buildings

Close up of a geared power unit on a Tidewater Oil Co. lease East Texas

Quiet Year in the Field in Kentucky and Illinois, Indiana, Ohio Divisions

BY GEORGE A. WHITNEY
Staff Correspondent, Central West Fields

The Central West fields, including Kentucky, Illinois, Indiana, Central Ohio and Lima Fields, had a dull year in 1933 with 871 completions as against 1,262 in 1932; 10,168 bbls. initial production last year and 22,419 bbls. in 1932; 297 dry holes, as against 416 in 1932 and 310 gas well, or 40 fewer than the previous year. A total of 264 oil wells was completed in the whole territory, while in the year before 496 oil wells were brought in.

Following is the record of the past year by districts:

KENTUCKY FIELD

Summary of Completed Wells in 1933

Month—	Comp.	Prod.	Dry	Gas	Oil
January	19	349	7	2	10
February	9	724	6	0	3
March	9	842	4	1	4
April	4	155	2	0	2
May	18	280	9	0	9
June	18	527	10	0	8
July	6	15	3	1	2
August	30	372	16	0	14
September	14	146	9	1	4
October	9	164	2	1	6
November	31	633	16	4	11
December	19	477	9	0	10
Total 1933	186	4,486	93	10	83

Summary by Counties

County—	Comp.	Prod.	Dry	Gas	Oil
Ohio	50	1,623	25	3	22
Daviess	52	927	27	1	24
Hancock	27	585	12	1	14
McLean	22	424	10	0	12
Henderson	7	80	2	1	4
Muhlenberg	7	104	2	2	3
Barren	1	20	0	0	1
Warren	4	20	3	0	1
Knox	1	700	0	0	1
Webster	1	0	1	0	0
Allen	12	2	10	1	1
Hart	2	0	1	1	0
Total 1933	186	4,485	93	10	83
Total 1932	495	16,026	155	50	279
Difference	309	11,541	65	40	196

CENTRAL OHIO FIELD

Summary of Completed Wells in 1933

Month—	Comp.	Prod.	Dry	Gas	Oil
January	35	16	4	18	9
February	19	103	2	12	5
March	36	317	10	8	8
April	17	50	3	12	2
May	14	34	4	8	2
June	26	28	8	15	3
July	22	138	6	13	3
August	36	178	13	15	8
September	45	199	10	26	9
October	34	282	9	14	11
November	64	168	15	41	8
December	50	130	18	20	12
Total 1933	378	1,643	102	202	74

Summary by Counties

County—	Comp.	Prod.	Dry	Gas	Oil
Ashland	11	52	5	3	3
Medina	38	307	14	1	23
Lorain	20	25	7	12	1
Wayne	3	0	2	1	0
Holmes	3	30	0	2	1
Richland	1	0	1	0	0
Summitt	7	0	1	6	0
Fairfield	13	10	2	9	2
Knox	7	41	2	2	3
Coshocton	16	723	1	0	15
Licking	28	326	6	9	13
Muskingum	13	81	4	7	2
Athens	37	6	15	19	3
Tuscarawas	6	21	1	2	3
Portage	3	0	3	0	0
Stark	97	0	10	87	0
Belmont	43	22	13	28	2
Guernsey	18	5	6	11	1
Columbiana	1	0	0	1	0
Crawford	0	0	0	0	0
Trumbull	2	0	2	0	0
Carroll	1	0	1	0	0
Cuyahoga	3	0	2	1	0
Vinton	3	2	2	0	1
Lawrence	3	2	2	0	1
Logan	1	0	0	1	0
Total 1933	378	1,643	102	202	74
Total 1932	406	2,118	124	186	97
Difference	28	475	22	33	23

INDIANA FIELD

Summary of Completed Wells in 1933

Month—	Comp.	Prod.	Dry	Gas	Oil
January	17	100	11	5	1
February	16	55	6	4	6
March	14	85	3	6	5
April	4	25	2	0	2
May	7	38	0	5	2
June	15	65	4	5	6
July	9	0	4	5	0
August	14	175	3	5	6
September	7	57	1	2	4
October	23	515	7	7	9
November	20	195	10	4	6
December	25	362	12	7	6
Total 1933	171	1,672	63	55	53

Summary by Counties

County—	Comp.	Prod.	Dry	Gas	Oil
Gibson	14	415	0	10	4
Pike	35	0	12	23	0
Vigo	5	120	2	2	1
Sullivan	4	0	3	1	0
Spencer	5	25	1	0	4
Knox	3	0	1	2	0
Daviess	8	7	4	2	2
Perry	24	222	10	1	13
Allen	1	0	0	1	0
Hancock	4	5	3	1	1
Martin	4	10	3	0	1
Monroe	2	0	1	1	0
Vanderburg	40	868	12	1	27
Henry	4	0	1	2	0
Orange	1	0	1	0	0
Tippecanoe	2	0	2	0	0
Harrison	4	0	0	4	0
Huntington	3	0	2	1	0
Delaware	1	0	0	1	0
St. Joe	1	0	1	0	0
Jay	2	0	0	2	0
Randolph	1	0	1	0	0
Shelby	2	0	2	0	0
Kosciusko	1	0	1	0	0
Total 1933	171	1,672	63	55	53
Total 1932	190	2,516	81	55	54
Difference	19	844	18	0	1

ILLINOIS FIELD

Summary of Completed Wells in 1933

Month—	Comp.	Prod.	Dry	Gas	Oil
January	1	5	0	0	1
February	3	0	2	1	0
March	1	0	1	0	0
April	1	0	1	0	0
June	2	10	1	0	1
July	2	7	1	0	1
August	3	2	2	0	1
September	1	0	1	0	0
Total 1933	14	24	9	1	4

Summary by Counties

County—	Comp.	Prod.	Dry	Gas	Oil
Clark	2	2	1	0	1
Crawford	6	7	4	1	1
Coles	1	0	1	0	0
Lawrence	2	10	1	0	1
Wabash	2	0	2	0	0
Marion	1	5	0	0	1
Total 1933	14	24	9	1	4
Total 1932	47	81	29	6	12
Difference	33	57	20	5	8

LIMA FIELD

Summary of Completed Wells in 1933

Month—	Comp.	Prod.	Dry	Gas	Abd.
January	7	18	3	2	11
February	6	11	0	3	21
March	5	0	3	2	26
April	7	89	0	3	10
May	6	453	0	1	6
June	9	197	0	4	13
July	12	320	1	5	55
August	13	225	5	2	36
September	19	485	4	8	15
October	17	180	8	5	21
November	18	291	4	6	32
December	4	75	2	1	16
Total 1933	123	2,344	30	42	262

Summary by Counties

County—	Comp.	Prod.	Dry	Gas	Abd.
Wood	2	5	1	0	89
Hancock	4	45	1	0	13
Allen	6	36	0	0	12
Auglaize	4	13	1	0	4
Mercer	7	29	1	1	2
Sandusky	2	0	2	0	83
Lucas	3	3	1	1	4
Ottawa	0	0	0	0	4
Van Wert	1	40	0	0	0
Seneca	28	3	4	23	9
Wyandot	61	2,170	17	14	1
Logan	1	0	0	1	0
Hardin	2	0	0	2	0
Marion	1	0	1	0	0
Williams	1	0	0	1	0
Total 1933	123	2,344	30	42	262
Total 1932	124	1,678	24	51	49
Difference	1	666	6	9	173

Curb Failed to Keep U. S. Production Down

(Continued from Page 39)

more oil in one year than Glenn Pool, Oklahoma, in 27 years, for the famous old Glenn Pool has produced only 190,385,632 bbls. since it was opened.

East Texas' production last year exceeded that of Huntington Beach since 1920, which was 202,565,008 bbls.; Burbank, Oklahoma, since 1920, 187,278,307 bbls.; Hendrick, Texas, since 1926, 171,942,134 bbls., and the Yates Field in Texas, since 1926, 173,912,545 bbls. The East Texas Field, which stretches out into five counties, Gregg, Rusk, Upshur, Smith and Cherokee, in one year dwarfed the all-time production of famous old fields like Caddo, La., 27 years old; Burkburnett, Humble, Mexia, Powell, Sour Lake, West Columbia, Goose Creek and in fact its one-year production exceeded the all-time production of all but 11 fields in the United States.

East Texas produced more oil last year than Russia or Venezuela in the same year. It exceeded Russia's production by 52,000,000 bbls. and Venezuela's production by 84,000,000 bbls. It produced nearly four times as much as Rumania; four times as much as Persia, and six times as much as Mexico. Its crude oil output last year was greater than that of all foreign countries combined, excluding Russia, Venezuela and Rumania. It is a startling fact that the combined production of Persia, Dutch East Indies, Mexico, Argentina, Peru, Colombia, Trinidad, British India, Poland, Sakhalin, Japan, Sarawak, Egypt, Germany, Ecuador, Canada, Iraq, Italy and a few minor places, fell more than 4,000,000 bbls. short of equaling last year's crude output in East Texas.

America's Oil Predominance

World production in 1933, using V. R. Garfias' estimates on the production of foreign countries and The Oil and Gas Journal's figures on gross production in the United States was 1,418,173,323 bbls.

Foreign fields, according to Mr. Garfias' estimate, produced 516,900,000 bbls. Twenty American fields in six states exceeded this volume of production by over 21,000,000 bbls.

Outside of Russia, Venezuela, Rumania, Persia, Dutch East Indies and Mexico, no foreign country produced last year as much as the Van Pool in East Central Texas.

The production of the six largest foreign oil countries, Russia, Venezuela, Rumania, Persia, Dutch East Indies and Mexico, 438,000,000 bbls., was exceeded by the combined production of 10 single fields in the United States listed in their order in the comparative production table on this page, which produced 443,515,034 bbls. last year.

Texas and Oklahoma, or Texas and California produced over 60,000,000 bbls. more than all foreign countries combined. The 60-year-old Bradford Field in Pennsylvania produced more oil than Trinidad, British India, Poland or eight more other foreign countries. Scores of pools in the United States, not regarded as major pools, produce more oil than Egypt, Germany, Ecuador, Canada or Iraq, although it must be said that when the pipe line to Mediterranean points is completed the last named field in Asia Minor will take rank among the big fields of the world.

Big Decline in Drilling in East Texas Not Offset

(Continued from Page 37)

ferson Parishes in Louisiana, while a 1931 discovery, rose to a prominent position in 1933. The Magnolia Petroleum Co. and Shell Petroleum Corp. own most of the acreage but the Barnsdall Oil Co. came into the field late in 1933 and drilled two producers on farmed out acreage east of production. This is a 6,900 to 7,000-foot development and drilling is consequently slow. The production is severely pinched in and the field's output of 14,000 bbls. per day is only a fraction of what it can do.

Southwest Texas

When the time comes that oil commands a price attractive to the general run of operators the Southwest Texas Field, an immense area covering more ground than the average American State, will come into a great development. It has more pools in which only one or two wells have been completed than any other producing division. When the oil is needed and the pipe line companies spread out their gathering systems, Southwest Texas will come into its own. In 1933, 18 discovery wells were drilled in that division. Duval County had six of these and in fact Duval County had nearly one-third of all the 951 wells completed. The Government Wells trend was given a testing which spread into McMullen County. Webb, Starr, Bexar, Bastrop and Zapata Counties were active during the year. A total of 951 wells were drilled, or 51 more than in 1932. New pools were opened in Duval County, (6); Bee, (2); Starr, (2); Bastrop, (2); Caldwell, Jim Wells, Live Oak, Williamson, Zapata and Bexar, 1 each.

In Other Texas Fields

Notwithstanding overproduction in East Texas and the attention being given the Gulf Coastal Field, West Texas enjoyed a busier year in 1933 than in the previous year. Ward County was the most active spot in the territory. Several Ordivician tests in the Big Lake Field were brought onto big production but some of them stopped flowing and had to be worked over or treated with acid. Runnels County was revived after four years of inactivity, and successful work was done in the Addis Pool and the Cowden area. A shallower discovery was made in Irion County and a good showing of oil was discovered in Reeves County.

No new pools were opened in the Panhandle Field but 32 more wells were drilled than in 1932.

In the North Central Texas fields, Foard County came into prominence when the Texas Co. completed a 581-bbl. well at 3,556 feet on an 8,700-acre block in the western part of the county. Later when the well was deepened it made 3,500 bbls. a day. The Bucher Pool in Montague County was extended.

North Louisiana-Arkansas

In the North Louisiana division the Converse Field in Sabine Parish was the most important development of 1933 but up to the close of the year its limits had not been defined. It is a comparatively shallow field. The eastern flank of the Zwolle Field came in for considerable successful work. Deep tests, trying to find oil production in the Trinity horizon were features of the year's exploration work but no one had yet touched a productive spot in that sand. Arkansas was very quiet but Mississippi came in with 16 gas wells with an initial flow of 535,000,000 feet. These were drilled in the Hinds and Rankin areas.

In California

No important discoveries were made in California in 1933. It was a year of unsettled conditions in that State which held back field work, lowered production and affected prices. The Mountain View and the Kettleman Hills Middle Dome were definitely proven, and promise to be important fields. The Mountain View Field is about 10 miles southeast of the city of Bakersfield in Kern County. A 2,750-bbl. well at 5,864 feet completed in May stamped it as a real pool. The Standard Oil Co. definitely proved the importance of the Kettleman Hills Middle Dome in April. The exploitation of tideland properties opposite the Huntington Beach Field by operators on adjoining properties tilting their rotary tables so that the drill penetrated the pay under the ocean bed (which is the property of the State) was a feature of the year. The oil thus obtained together with the stimulating effect such development gave to operators in the Huntington Beach Field made that a busy area and increased its production tremendously, and unsettled the crude market.

A deep drilling record was made in California last year when a test in the Kettleman Hills Field penetrated to a total depth of 10,944 feet and was not yet finished.

East Texas Drilling Fell Off

Drilling in East Texas fell off greatly, as already noted, and this year the activity will be even less. More attention was attracted to efforts to find new pools in the East Central Texas area, and for a time it appeared as if a new pool of importance had been opened in the Palestine area but up to the close of the year the work done in the several counties in that part of the State in spots where seismograph tests had given much promise, had come to little.

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WORTHINGTON

Pipe Line Construction in 1933 Mostly Short

(Continued from Page 97)

proximately 1,000 feet of 4-inch line to connect with Gulf Production Co.'s new wildcat producer at Cleveland, northwestern Liberty County. The connection ties in with Magnolia's trunk line from North Texas to the coast.

At Greta, two pipe line outlets were provided, one by Atlantic Pipe Line Co. and the other by Texas Pipe Line Co. Atlantic laid approximately 10 miles of 10-inch line to Refugio, where it connects with the company's Refugio-Harbor Island line. Texas Pipe Line Co. laid a similar amount of 6-inch line to Refugio where it connects with Humble Pipe Line Co.'s Pettus-Refugio-Ingleside line.

Sun Pipe Line Co. put in approximately 2 miles of 8-inch extension line at Hull, Liberty County, to serve the new Jackson sand area on the south flank of the dome. In the same field, Gulf Pipe Line Co. laid about 1½ miles of 4-inch line to the new Hull area.

California Construction

Wilshire Oil Co. constructed a 25-mile 6-inch welded crude oil line from Huntington Beach to Santa Fe Springs, where it tied in with existing trunk lines from Huntington Beach to the company's refinery at Vernon. Previously, Associated Oil Co. had transported Wilshire's production from Huntington Beach to Santa Fe Springs, but with the development of substantial production due to exploitation of the tidelands, Wilshire deemed it advisable to install a line of its own.

Early in 1933 Standard Oil Co. completed a submarine pipe line at El Segundo to facilitate the loading of tankers and eliminate the necessity of vessels pulling into Los Angeles Harbor. During the past few months Standard has been utilizing its submarine line in loading fuel oil destined for domestic consumption along the Atlantic Seaboard. It has likewise been used to move Kettleman Hills and Elwood crude from tankers to the El Segundo refinery. Standard's submarine line, 3,200 feet in length and consisting of 16-inch welded pipe, is supplemented by an 8-inch parallel line. These two lines are connected together at the outer, or seaward end, to permit circulation and facilitate cleaning and flushing of the 16-inch primary line. The submarine line is hooked up with a 20-inch gravity line extending from Standard's tank farm and refinery at El Segundo. Standard's 16-inch submarine line, unlike most other similar installations on the Pacific Coast, starts at the outer end of a 2,200-foot wharf and thus the seaward end is 5,400 feet beyond tide line. Most of the other submarine pipe lines in California start at tidewater and are thus entirely submerged.

In the Kettleman North Dome Field, Superior Oil Co. laid a short crude oil pipe line early in 1933 from its Huffman lease in the Hills down to a loading rack in the flat area of the valley. A considerable portion of the oil moved through the Superior's 5-mile line has been going to Caminol Oil Co.'s refinery at Hanford, about 20 miles distant. Late in 1933, Southern California Gas Co. laid two short auxiliary gas lines in Kettleman Hills area. One of these consisted of 2 miles of 16-inch welded pipe and was laid for the purpose of connecting Southern California Gas Co.'s field gathering system with Standard Gasoline Co.'s 3-P plant and the 33-J plant in the North Dome of Kettleman Hills. In the Kettleman Middle Field, Southern California Gas Co. laid 4 miles of 16-inch welded pipe to pick gas from Standard's absorption gasoline plant. An additional short gas line was laid in the Mountain View Field late in 1933.

In Rocky Mountain Area

There were no major gas lines constructed in the Rocky Mountain area during 1933. The principal project was in Carbon County, Wyoming, built by Rocky Mountain Gas Co., an affiliate of Ohio Oil Co., to supply Laramie with gas from the Dutton Creek Field. A 38-mile 6-inch oil line from Rock Creek to Laramie operated by Illinois Pipe Line Co. prior to the closing of Standard Oil Co.'s (Indiana) Laramie refinery, was acquired and converted into a gas carrier. Five miles of 6, 8 and 12½-inch pipe and 4 miles of trunk line were laid to connect the field with the old line and the latter with the city distribution system. The city system was overhauled and converted to natural gas by the new owners, the project costing approximately $670,000. Ohio Oil Co. and Mutual Oil Syndicate sell the gas to the transporting and distributing companies from their wells in Dutton Creek.

Another small project in the same county was construction by the same interests of a 5-mile 3-inch line from No. 1 A. J. Hazlett in the Allen Lake Field to Medicine Bow and the piping of that town for natural gas. Additional drilling is in progress at Allen Lake and when a sufficient reserve is built up it is expected a 22-mile line will be constructed to a connection with the Dutton Creek-Laramie line as an additional supply for Laramie.

A project inaugurated some time ago whereby the city of Casper proposes to acquire the municipal distribution system of New York Oil Co. and purchase its supply of gas from Lakota Oil & Gas Co., was pending at the close of the year. The Lakota company proposes to acquire its gas from the Texas Co., operating in the Alkali Butte and Muskrat Fields in Fremont County. The city has pending before the Reconstruction Finance Corp. a petition for a loan to finance the acquisition. If the deal finally is consummated, considerable pipe line construction will be required.

There was no important gas line construction reported in New Mexico and several projects reported under consideration last summer have no yet materialized. One of these was a line 50 miles long from Phillips Petroleum Co.'s gasoline plant in the Hobbs Field to the United States Potash Co.'s refinery near Loving, southeast of Carlsbad. The Phillips company is said to have signed the contract with the Potash company for this line. The Texas Co. requested bids last summer for the construction of a 25-mile line from the Hobbs Pool to the Lea Field, the gas being used to produce the pumpers in the Lea Pool, and it is probable this line will be built in 1934.

A large project not in the Rocky Mountain area, but which will extend the market for gas in the Jal Pool in New Mexico, is under construction in Arizona in the Western Pipe Line Co.'s extension from Douglas to Phoenix, by way of Tuscon. The line will be 195 miles long and consist of 10-inch pipe. It connects at Douglas with the company's line from New Mexico. The Reconstruction Finance Corp. made a loan of $2,200,000 as a part of the construction cost of the line. H. J. Kaiser Co. and Bechtel-Kaiser Co., of San Francisco, Calif., have the contract and the pipe is being furnished by the A. O. Smith Corp. and Republic Steel Co.

Illinois Pipe Line Co.'s 30-mile line consisting of 3 and 4-inch pipe, connecting the Pilot Butte Field in Fremont County, Wyoming, with the railroad at Riverton, was abandoned. The pipe, tanks, field equipment and loading racks were purchased by American Pipe & Supply Co. for junking. The Illinois company also abandoned a 7-mile 3-inch line from the Osage Field in northeastern Wyoming to the railroad. The increasing use of tank trucks for the transportation of crude was the direct cause of the abandonment of both lines.

W. R. Weeks of Denver, and others, were granted a permit last February by Wyoming Public Service Co. for construction of a 40-mile oil line from the Maverick Springs Field in Fremont County, to the town of Riverton. Application for Federal funds to build the line has been approved by the Wyoming Public Works engineer and is pending before the administration in Washington. The Maverick Springs Field has been shut in for a number of years for lack of a pipe line. The cost of the project will be approximately $850,000. The requested loan was for $525,000.

Pipe Lines in Michigan

Twelve new oil and gas lines ranging from 1½ to 40 miles in length and from 2 to 8 inches were laid in Michigan during 1933, the biggest year in the State's history in this respect as well as in drilling developments.

The largest line was Consumers Power Co.'s 40-mile 8-inch line between the Broomfield Township gas pool and the city of Midland to connect with the company's old line to transport gas from Midland another 30 miles to Saginaw and 10 miles to Bay City, two cities which before the close of the year were using between 3,000,000 and 5,000,000 feet a day.

Pure Oil Pipe Line Co. built several new lines to new oil pools as follows: A 7-mile, 6-inch line to the Porter Pool in Midland County; a 4-mile, 6-inch line between its Greendale Township tank farm and the Yost-Jasper Pool; a 4-inch line, 1½ miles long from the Ogemaw Pool to the nearest railroad and a 2-inch line between its Reinhardt well and two wells on the discovery Weber-Wilcox lease; and a 2-inch line, 1½ miles long from the Daily Oil Co.'s discovery well on the Christensen lease in Home Township, Montcalm County, to the nearest railroad line.

Simrall Pipe Line Co., subsidiary of the Roosevelt Refining Co., of Mount Pleasant, laid a 10-mile, 4-inch line from the East Pool in Greendale Township to the flush Porter Township Pool, and a 3-mile, 4-inch line from Porter to the village of Wheeler.

Producers Pipe Line Co., subsidiary of Old Dutch Refining Co., of Muskegon, laid a 10-mile line from the East Pool to Porter Township, later purchased by the Pure Oil Pipe Line Co. Wellman Oil Co. also built a line from Porter Field to Wheeler, about 3 miles.

Continental Gas & Oil Co., of Muskegon, subsidiary of Continental Motors Corp., laid 3 miles of 6-inch pipe to transport gas from its wells in Section 22, Muskegon Township, to a compressor plant in Section 9, same township. Miller & Combs laid a 2-mile, 2-inch gas line from the Elba Township, Gratiot County gas pool to the village of Ashley. Taggart Brothers, Inc., laid a 4-inch line about 7 miles long from the Austin Township, Mecosta County gas pool to Big Rapids.

Plans for two major pipe lines, one 157 miles long from the Mount Pleasant area to Saginaw, Bay City, Flint and Pontiac, and another 60 miles long to Lansing, were announced during 1933 by the Michigan Central Gas Corp. and Central Michigan Natural Gas Corp., respectively, but had not been placed under construction.

Canadian Pipe Lines

The major natural gas companies in the Alberta and Ontario fields restricted their work in 1933 to renewals and replacements. The only new work in Ontario was the laying of 4 miles of 4-inch line to connect Olga Oil & Gas Co.'s production in Raleigh Township, Kent County, with Southern Ontario Gas Co.'s main transmission line.

Alberta projects for marketing surplus Turner Valley gas are no longer discussed, owing to the uncertainty as to the future of the field. Edmonton interests late in the year made plans to pipe gas from the Fabyan-Wainwright area to the cities of Saskatchewan; but this is conditional on securing franchises, government approval of the exporting of gas, and financial backing.

In Ontario a large project to pipe gas from fields in Lambton County to Stratford, Kitchener and intervening communities was promoted in 1933 by Leo A. Wilson and associates of the Sarnia Oil & Gas Co. No definite franchises have, however, been secured, and it is unlikely any construction will develop in the coming year.

The Oil Man's Calendar

January

25-26—Sioux Falls, S. Dak., South Dakota Independent Oil Dealers Association.

27-Feb. 3 — Chicago, National Automobile Chamber of Commerce.

February

6-7—Des Moines, Iowa, Iowa Petroleum Association.

13-15—Columbus, Ohio, Ohio Petroleum Marketers Association.

15-16—Oklahoma City, Okla., Mid-Continent A.P.I. Division of Production.

21-22—Peoria, Ill., Illinois Petrotroleum Marketers, Pere Marquette Hotel.

Louisville, Ky., Kentucky Petroleum Marketers Association.

March

5-9—Washington, D. C., American Society for Testing Materials, Committee D-2.

5-9 — Philadelphia, Pa., American Oil Burner Association.

7—A.S.T.M. regional meeting, at Wardman Park Hotel, Washington, D. C.

5-9—Group meetings, A.S.T.M. committee, Wardman Park Hotel, Washington, D. C.

22-24—Dallas, Tex., American Association of Petroleum Geologists annual meeting, Baker Hotel.

26-29—Miami, Fla., American Chemical Society.

April

16-21 — Houston, Tex., Oil Equipment and Engineering Exposition.

19-20 — Cleveland, Ohio, National Petroleum Association.

Philadelphia, Pa., American Oil Burner Association.

May

1-4 — Washington, D. C., U. S. Chamber of Commerce.

3-4-5 — Kansas City, Mo., twelfth Midwest regional meeting of American Chemical Society.

9-10-11 — Tulsa, Natural Gasoline Association of America, New Hotel Tulsa.

12-19—Tulsa, International Petroleum Exposition.

17-18—Roanoke, Va., Virginia Oil Jobbers Association, and Virginia Oil Men's Association.

22-24 — Pittsburgh, Pa., midyear meeting, A. P. I. divisions, William Penn Hotel.

June

25-29—A.S.T.M. annual meeting, Chalfonte-Haddon Hall Hotel, Atlantic City, N. J.

28-29—State College, Pa., Pennsylvania Grade Crude Oil Association.

28-29 — Charleston, W. Va., West Virginia Oil Marketers Association.

September

9 — Wernersville, Pa., American Trade Association executives.

10-14 — Cleveland, Ohio, American Chemical Society.

19-21 — Atlantic City, N. J., National Petroleum Association.

November

12-15—Dallas, Tex., annual meeting, A.P.I.

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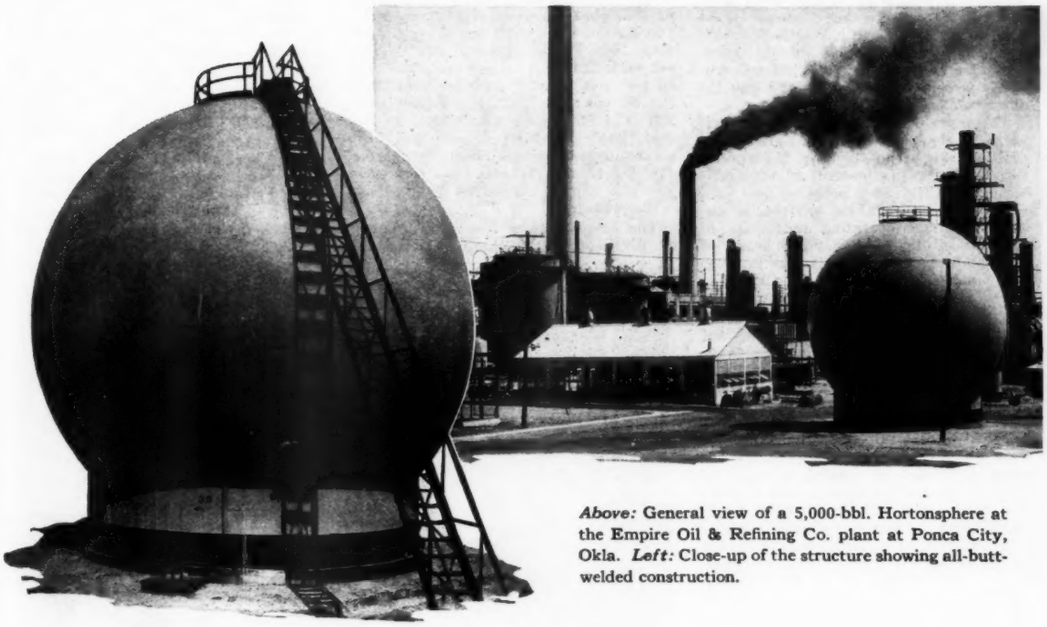
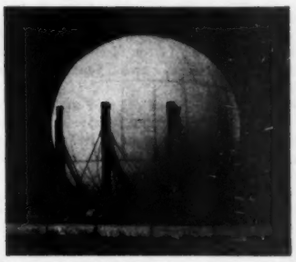


Above: General view of a 5,000-bbl. Hortonsphere at the Empire Oil & Refining Co. plant at Ponca City, Okla. *Left:* Close-up of the structure showing all-butt-welded construction.



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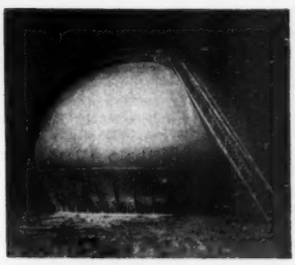
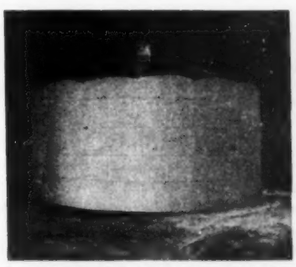
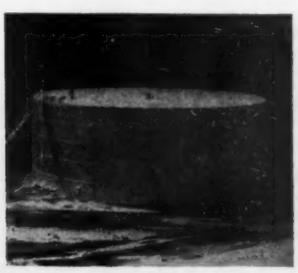


HORTONSPHEROIDS for liquids that boil at normal temperatures and require 10 to 20 lbs. pressure to prevent evaporation.



RADIAL-CONE TANKS for liquids which require from 1 to 10 lbs. pressure to stop evaporation losses.

WIGGINS PONTOON ROOFS ride directly on the oil in a tank, stopping evaporation losses and reducing the fire hazard.



WIGGINS BREATHER ROOFS flex up and down to take care of thermal expansion and contraction, preventing breathing.

Storing Blending Stock without Evaporation Loss

WHENEVER extremely volatile oil products are stored in ordinary tanks the evaporation loss is tremendous. The loss is not only volumetric, as the evaporation of the lighter fractions reduces the octane number and the vapor pressure.

Such products can be stored in Hortonspheres, however, with practically no evaporation loss. Take, for instance, the installation illustrated above. It has a capacity of 5,000 bbls. and is used to store a butane-pentane mixture from the time it is produced by a vapor recovery plant until it is used for blending. The Reid vapor pressure of this mixture ranges from 20 to 35 lbs. absolute at 100° F. and the octane number is well over 80.

This Hortonsphere is designed to operate at 50 lbs. pressure. It is a completely closed structure equipped, of course, with vacuum and pressure relief valves. As the temperature increases, it simply builds up the pressure inside the Hortonsphere. No vapor is vented out and no evaporation loss takes place, except for unusual conditions which might cause the pressure to exceed the setting of the relief valve. This rarely happens, however, if the characteristics of the product to be stored are taken into consideration when the working pressure is determined.

The use of the Hortonsphere enabled the Empire Oil & Refining Co. to provide the entire amount of storage necessary for this purpose in one unit, with one set of piping and fittings. The original cost per bbl. of storage is considerably less than if smaller units were used.

In addition to the Hortonsphere, we build Hortonspheroids and radial-cone tanks for lower pressures, Wiggins Pontoon Roofs for working tanks storing crude oil and gasoline not requiring pressure and Wiggins Breather Roofs for standing storage tanks. When considering additional storage capacity, ask our nearest office to quote you on the type of tanks which will be most effective in stopping evaporation loss under your particular conditions.

CHICAGO BRIDGE & IRON WORKS

DALLAS	1241 Burt Bldg.	DETROIT	1514 Lafayette Bldg.	SAN FRANCISCO	1054 Rialto Bldg.
HOUSTON	2919 Main Street	CLEVELAND	2204 Rockefeller Bldg.	SEATTLE	4323 Smith Tower
TULSA	1606 Thompson Bldg.	NEW YORK	3147 Hudson Terminal Bldg.	LOS ANGELES	1423 Wm. Fox Bldg.
BIRMINGHAM	1536 Fiftieth St., N.	PHILADELPHIA	1615 1700 Walnut St. Bldg.	HAVANA, CUBA	Edificio Abreu
CHICAGO	2128 Old Colony Bldg.	BOSTON	1517 Consolidated Gas Bldg.	CABLE ADDRESS	Chibridge

FABRICATING PLANTS IN BIRMINGHAM, CHICAGO AND GREENVILLE, PA.

Cutting Operations of Bureau of Mines Will Hurt Oil and Gas Industries

The oil and gas industry which has been aided so much by the work of the U. S. Bureau of Mines is interested in the probability that the appropriation for this bureau is to be reduced. The $111,766 set up for the coming fiscal year is $3,000 less than for the present year, provided 5 per cent of the 15 per cent pay cut is restored, and is contrasted with an appropriation for the oil and gas investigations two years ago of $232,000.

Since last July the oil and gas division of the bureau has lost nearly half of its personnel; the offices at Laramie, Wyo., and Shreveport, La., were closed and the forces at San Francisco and at Dallas, Tex., were reduced to mere skeleton organizations while the work at the Petroleum Experiment Station at Bartlesville, Okla., was curtailed drastically.

There was also the consolidation of the helium division with the petroleum and natural gas division. R. A. Cattell, a former member of the petroleum and natural gas division, who did outstanding work (assisted by E. L. Rawlins, now in direct charge of the oil and gas recovery problems for the bureau) on the fundamentals of relationships pertaining to natural gas production and transportation, and who subsequently was made chief engineer of the helium division, is now chief engineer of the petroleum and natural gas division, heading up all of the bureau's work on oil and gas, including helium.

The whole appropriation for helium investigations which has supported the Cryogenic Laboratory, at the Amarillo, Tex., helium plant of the Bureau of Mines, and natural gas surveys throughout the United States, is not included in the budget for the fiscal year, 1935. If this item is left out it will be necessary for the bureau to drop a corps of highly trained technical men who have spent years in developing fundamentals that pertain to low temperatures and to high pressure relations of fluids. This work dovetails into the major research of the bureau on fluid-energy relations which are coming to be recognized as so important a factor in the technical and economic problems of the oil and gas industries.

The types of problems studied by engineers in the petroleum and natural gas division are exemplified by the special report on the gas reserves of the Oklahoma City Field. Such problems deal with careful and unprejudiced analyses of underground and operating conditions in gas and oil fields. A detailed study of the Oklahoma City Field is now in progress, and special studies of Oklahoma fields usually are made as conditions warrant. Investigative work of the bureau at the present time is subdivided into sand performance investigations investigations of subsurface conditions in oil and gas reservoirs, oil recovery studies, petroleum refining studies, and investigations dealing with corrosion of oil field equipment and disposal of oil field waste. Many of these problems are being correlated in making a study of fluid-energy relationships in the production of gas and oil, the results of which should lead to better operating policies in production. One special benefit should be the conservation of gas in production of oil. This work, all practical in its application, could be carried on only with difficulty by individual or separate operating companies.

Refiners' Questionnaire on 1932-1933 Production

By ANDREW M. ROWLEY

WASHINGTON, D. C., Jan. 23.—Refiners and individuals engaged in refining petroleum have been requested by the Planning and Co-ordination Committee under the code for the petroleum industry to furnish that body figures, by months for 1932 and 1933, showing the actual amount of gasoline in storage and stocks of unfinished gasoline, charging stock and other unfinished oils for the same periods, by months.

Unfinished gasolines, according to the questionnaire, include all unfinished gasoline stocks that require further treating or rerunning or any other additional refining or processing before they may be classified as marketable motor fuel. It should include any unfinished material that has an end boiling point of below 450 degrees.

The information requested is to be mailed the committee at such time as to reach the Washington office not later than February 5.

While the questionnaire does not so state, it has been felt for a long time the figures on gasoline stocks, as reported to and by the Bureau of Mines, do not reflect the true situation in the industry. These stock figures have presented a rather encouraging picture, as they have not, heretofore, included unfinished oils or unfinished gasoline.

Figures on runs to stills and other information indicated more gasoline was being manufactured than the statistics on requirements and differences in stocks indicated. The natural conclusion was that stocks of unfinished gasoline were increasing but refiners and individuals engaged in refining had not been forced to reveal figures on their stocks of unfinished oils. Even though only some slight processing or treatment might be necessary to make a finished gasoline, until that were done the product could be classed as unfinished and, as such, no report on it was necessary.

With the possibility that stocks of unfinished gasoline have increased, the entire picture as regard to gasoline stocks might be changed. If but a slight operation is necessary to change large quantities of unfinished gasoline into a finished product, figures being reported on stocks of finished gasoline lose much of their significance. This situation has been realized here and an effort is being made now to correct it and ascertain the real facts regarding oils in storage.

SAN ANTONIO CLUB ELECTS

SAN ANTONIO, Tex., Jan. 22.—Thornton Davis of the Simms Oil Co., has been elected president of the San Antonio Petroleum Club, succeeding E. B. Rubsamen of the S. R. C. Oil Co., who has served as president for the past year. Other officers elected were A. A. Buchanan and Dilworth Hager as vice presidents and R. H. Feltner as secretary-treasurer. In addition to the four elective officers the board of governors consists of the following: J. V. Adams, of the Humble Oil & Refining Co.; Jesse Bullard, of the Shell Petroleum Corp.; Al R. Eyssell, of the Peerless Oil & Gas Co.; F. M. Frasher, of the Duval Oil Corp.; Harry Nowlin, of the Darby Petroleum Co.; Alex Chitwood, of the Magnolia Petroleum Co.; Ed R. Easten, of the Gulf Production Co.; Tom Galbraith, of the California Co.; J. S. Miller, of the Devonian Oil Co.; William B. Sprague, of the Texas Co.; and H. J. Porter, independent operator.

W. B. POTTER DEAD

William Bancroft Potter, 70, long the engineer of the General Electric Co.'s railway department and a veteran of electric traction work in America, died January 15, in his home in Schenectady, N. Y. Mr. Potter retired September 1, 1930, after 43 years of service with the General Electric Co. and the Thomson-Houston Electric Co., one of its predecessors.

Canfield Oil Company Completes Skimming Unit

(Continued from Page 20)

199° F.; 80 per cent, 206° F.; 90 per cent, 216° F.; 95 per cent, 230° F. Percent maximum temperature, 96, 236° F.; residue, 1 per cent; loss, 3 per cent. Temperature at the top of the rerun tower is maintained at 180° F. The overhead stream passes from the condenser to the water separator and reflux tank.

The side stream fraction, called super naphtha, has a gravity of 63.1° F. A.P.I. Distillation characteristics follow: First drop, 200° F.; 10 per cent, 217° F.; 20 per cent, 221° F.; 30 per cent, 225° F.; 40 per cent, 228° F.; 50 per cent, 230° F.; 60 per cent, 232° F.; 70 per cent, 236° F.; 80 per cent, 238° F.; 90 per cent, 244° F.; 95 per cent, 248° F.; maximum temperature, 98 per cent over, 278° F.; residue and loss 1 per cent each. The side stream represents 30 per cent of the charge.

The bottoms from the rerun column, 23 per cent of the charge, showed the following characteristics: Gravity, 57° A.P.I.; first drop, 258° F.; 10 per cent, 269° F.; 20 per cent, 271° F.; 30 per cent, 273° F.; 40 per cent, 275° F.; 50 per cent, 278° F.; 60 per cent, 280° F.; 70 per cent, 284° F.; 80 per cent, 290° F.; 90 per cent, 301° F.; 95 per cent, 315° F.; per cent at maximum temperature, 98, 340° F.; residue and loss, 1 per cent each.

The gasoline charge to the rerun unit first passes through a preheater where the 65-pound steam raises its temperature to 215° F. The charge is then flashed into the tower at either of the eighth, tenth or twelfth plate sections. The bottoms are drawn into a reboiler which is supplied with 65 to 85-pound steam (311° F.-327° F.), and light vapors are returned to the tower below the bottom tray. Temperature on this tray is 300° F.

The side stream is taken off at the twenty-first, twenty-third or twenty-fifth trays. The temperature at this point is 200° F. The side cut goes through a cooler before passing to the rundown tank.

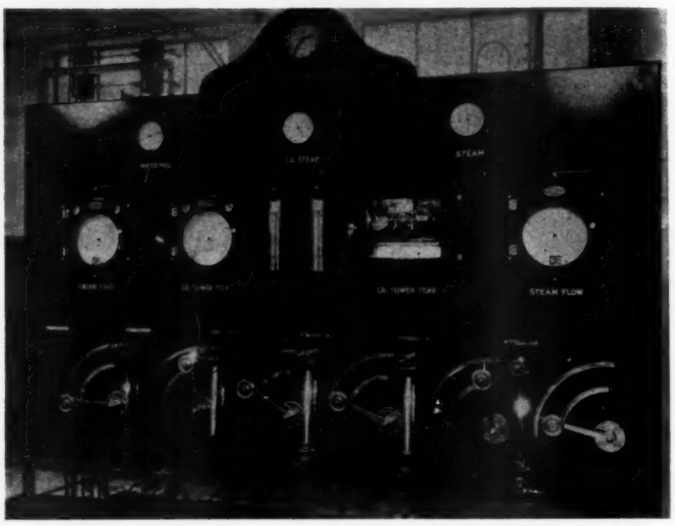
By splitting the 340° endpoint cut into these three fractions, the refiner is enabled to blend to particular specifications. It is pointed out that narrower cuts than these can be made, but it will probably be a little while before the flexibility of the unit will be called into full play as market demand for the various specialties must be known before any extensive commercial production can be scheduled.

Lubricating Oil

Returning to the product which has given the Canfield company its high reputation, lubricating oils, the bottoms from the main fractionating tower go to a working tank from which the "long residuum" is drawn to be blended with 50 per cent of naphtha and run to the clay filters. The temperature of the residuum and diluent is maintained at 110° F. until filtration is completed. After filtration the residuum goes to another working tank where it reaches atmospheric temperature before passing to the chillers. More naphtha is added bringing the percentages to 65 naphtha and 35 residuum, and the temperature is lowered to minus 10° F.

When the proper temperature is reached the residuum and diluent go to the Sharples centrifuges where the petrolatum, representing 16 per cent of the residuum charge, is removed. The small tower in which the naphtha is stripped from the residuum was designed by Canfield engineers and is unique in several particulars.

The residuum stripping tower is equipped with 10 bubble cap trays, and in addition there is a perforated entrainment plate at the top of the tower just below the vapor outlet. Live steam at 420° F. is injected at the bottom of the tower, and there are reheaters, connecting the 10-tray sections in pairs. There are, then, five of these reheaters. The largest connects the top and next lower sections, and the remaining reheaters are smaller sucessively. This arrangement has proved highly efficient from the standpoint of economy and time saving.



Instrument and control board for new unit

One of the most interesting features in connection with the performance of modern distillation equipment from the standpoint of the veterans who have used batch stills, is the substantial saving in steam, aside from the improved properties of the products. Refiners who have recently installed modern units are particularly emphatic on this point. In this connection the system of heat exchangers is studied with interest. In this plant, for instance, the fresh crude charge is raised from atmospheric temperature to 170° F. in the vapor heat exchanger, and then to 215° F. in the gas oil exchanger and 325° F. in the bottoms exchanger, before reaching the pipe still where the temperature is raised to 650° F.

The control instruments are Mason-Neilan, and the recording equipment are Leeds Northrup. There are top tower and flow controllers on all of the columns, steam flow and furnace recorders, a six-point recorder on the main tower and a two-point recorder on the side stripper, to mention a few of the items.

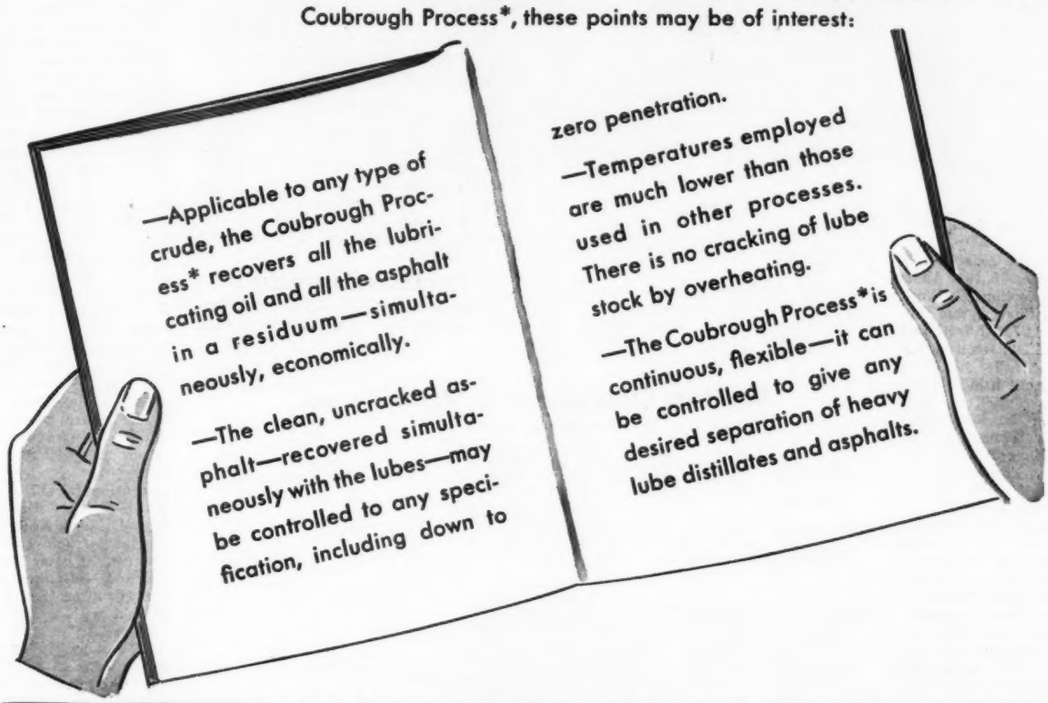
The new unit was designed and built by Alco Products, Inc.

SEEKS REDUCED GASOLINE TAX

BOSTON, Mass., Jan. 22.—Senator Moise has introduced in the Massachusetts Senate bills reducing the gasoline tax in Massachusetts from 3 to 2 cents.

A BRIEF REVIEW *May Be Helpful*

In May of 1933, Lummus introduced the Coubrough Process*. The initial announcement and the release of additional data resulted in the investigation of the Coubrough Process* by a number of producers of lubricating oils and asphalts. For those who are not yet familiar with the Coubrough Process*, these points may be of interest:


—Applicable to any type of crude, the Coubrough Process* recovers all the lubricating oil and all the asphalt in a residuum—simultaneously, economically.
—The clean, uncracked asphalt—recovered simultaneously with the lubes—may be controlled to any specification, including down to zero penetration.
—Temperatures employed are much lower than those used in other processes. There is no cracking of lube stock by overheating.
—The Coubrough Process* is continuous, flexible—it can be controlled to give any desired separation of heavy lube distillates and asphalts.

* *The Coubrough Process is covered by U. S. Patent No. 1,905,156 and other patents allowed and pending.*

The Coubrough Process*, and the opportunities it offers for reduction of 1934 costs, well merit your investigation. Complete data upon request.

THE LUMMUS COMPANY, 50 CHURCH STREET, NEW YORK, N. Y.

LUMMUS

PETROLEUM REFINING PLANTS

Thirteen More Locations Made in West Texas; Renewed Activity in Old Producing Areas

By L. E. BREDBERG
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Jan. 22.—Thirteen more locations were made in the West Texas district during the past week. Although there have been several locations made for wildcats, the majority of the locations are made by major companies in producing areas, and it is the opinion of many that developments in the next few months will be in the producing areas and not by wildcatting. Old producing leases are now being reworked, some wells being treated with acid, and more wells being drilled. This new drilling program has already revived business for supply companies and dealers of equipment. Locations were made in the following counties: Two in Ector, three in Howard, one in Reagan, two in Runnels, two in Upton and three in Ward County.

Ector County

The old discovery well of Stanolind Oil & Gas Co., on the J. M. Cowden ranch in Section 26, Block 42, Township 1n, T.&P.R.R. Survey, Ector County, originally completed by the Southern Crude Oil Purchasing Co. in September, 1930, and rated as a 220-bbl. well, was shot with 160 quarts at 4,189-4,241 feet and is now rated a little better than a 900-bbl. well. The company owns several solid sections around the discovery well and has made locations for three more tests in this area.

Atlantic Oil Producing Co.'s No. 1 Jones, on the east edge of the Addis Pool, Ector County, in Section 36, Block 43, Township 2s, T.&P. Survey, was shot with 100 quarts from 4,270-92 feet, and with 380 quarts at 4,200 feet which bridged the hole and it failed to clean itself. It is now drilling out bridge. Total depth is 4,299 feet. Last week the well was estimated good for 50 bbls. daily of 30 gravity which is lower than the other wells in the Addis area. The pay found in this well opens deeper pay for the pool and for the other wells already producing from the higher horizon.

Frank Gilpin and others' No. 1 Blakeney, an outpost well west of the Cowden area in Section 32, Block 43, Township 1n, T.&P. Survey, Ector County, is drilling at 4,335 feet in hard white lime with no increase of oil or gas being reported. A light flow of gas was developed between 3,990 and 4,040 feet and free oil appeared at 4,255 feet with saturation continuing to 4,290 feet. It will be an extension to the field of more than 1½ miles if it makes a producer.

Two more locations were made in Ector County during the week by Landreth Production Co. Locations were made in the north end of the field for Landreth Production Co.'s No. 2 O. B. Holt in Section 15, Block 43, Township 1n. Landreth Production Co. and Llano Oil Co. will drill No. 2 O. B. Holt in Section 20, Block A, P.S.L. Survey.

Reagan County

E. P. Kirschner and White have made location for a wildcat in Reagan County. Location is on the W. A. White and McIntosh lease in Section 1,223, E.L.R.R. Survey.

Crane County

Gulf Production Co.'s No. 1 Tubbs, the discovery well and the only producer for western Crane County, was treated with 1,000 gallons of acid, and after being unloaded it is estimated good for 100 bbls. daily flowing. Prior to acid treatment, it was good for 30 to 40 bbls. daily. Total depth is 4,342 feet. It is in Section 8, Block B-27, P.S.L. Survey. The company is drilling No. 1 Edwards, a few miles north of the discovery well in Section 21, Block 18-B, P.S.L. Survey. Total depth is 3,605 feet.

Runnels County

Two more locations were staked in the McMillan Pool in Runnels County this week. W. S. Sawyer and others are to drill their No. 1 Giesecke in Block 131, James Hughes Survey, and Golden Petroleum Corp. has made location for No. 3 McMillan in Subdivision No. 22, N. Travis Survey No. 533.

Upton County

In Upton County, Texas Pacific Coal & Oil Co. has made location for No. 1-C J. H. Sherk, in Section 1, Block 3, M. K.&T. Survey. If it makes a well it will make a short northern extension. Williams & Williams Drilling Co. has made a wildcat location for No. 1 Robbins in Section 4, G.C&S.F. Survey.

Ward County

Three locations were made in Ward County, California Co. making location for its No. 5 York, in Section 10, Block 34, H.&T.C. Survey. Jack Leidecker's No. 2 Archenhold was located in Section 23, Block 5, H.&T.C. Survey, and Gulf Production Co. is moving in for its No. 42 O'Brien in Section 17, Block F, G.M.M.B.&A. Survey. Only one completion was reported, California Co.'s No. 2 J. F. York.

In the Howard-Glasscock area, old wells are being given acid treatment. In Tribal Oil Co.'s No. 1-C Edwards, in Section 16, Block 33, Township 2s, T.&P. Survey, Glasscock County, pay was topped at 2,160 feet and at 2,202 feet it was swabbed for 15 bbls. of oil hourly. It was treated with 1,000 gallons of acid heated to 150 degrees, with a 230-bbl. oil load under 1,300 pounds pressure, and after treatment pumped 54 bbls. the first hour and 45 bbls. the second hour. World Oil Co.'s No. 2-C McDowell, in Section 21, Block 34, Township 2s, T.&P. Survey, Glasscock County, which had been shut down since 1930 and at that itme was good for only 4 bbls. of oil and twice as much water, was also treated with acid and is now estimated good for 100 bbls. daily.

Terrell County

Sides and others' No. 1 Phelps, a wildcat drilling in Terrell County, encountered a rainbow showing of oil from 5,060-70 feet, and enough gas to burn during the week. It is in Section 6, Block A-4, G. W. Turley Survey, and is drilling in black shale at 5,130 feet.

Deep Tests

Humble Oil & Refining Co.'s deep test in search for the Ordovician pay, is drilling at 7,575 feet, location is in Section 44, Block Z, T. C. Survey, Pecos County. The deep test of Gulf Production Co.'s No. 103 McElroy, on the Crane-Upton County line, is drilling below 8,800 feet.

PANHANDLE DISTRICT

Twelve locations and eight completions were reported in the Panhandle district during the week. Two of the completions were old wells drilled deeper, increasing their initial production. Only one dry hole was reported out of the eight completed, this being Reiger and others' No. 1 Foster, in Section 93, Block 7, I.&G.N. Survey, Gray County. The other wells completed added 1,412 bbls. daily in new production to the district. Six locations were made in Gray, two in Hutchinson, and four in Wheeler County.

The daily average production for the Panhandle district during the week was 43,335 bbls., a gain of 1,270 bbls. over the previous week.

RANGER AND WICHITA FALLS

Bridwell and others have opened an exceptionally good well in the northwest corner of the Nocona Pool in northwest Montague County. This new well, on the Mrs. S. F. Loy farm in the William Donoho Survey, is approximately three-quarters of a mile south of the Red River. It topped the pay at 1,750-80 feet and was shut down at the latter depth, estimated good for at least 750 bbls. of oil daily.

On the east side of the county, and in what is considered as an extension to the Bulcher Pool of Cooke County, Texas Co.'s No. 4 Jones is shut down at 1,846 feet looking good for some kind of a commercial producer. Same company's No. 1 O'Neal, in the Ed O'Connor Survey, topped a new sand for the area at 1,730-39 feet and also looks good for a producer. It is an offset to a well that produced from the 1,500-foot sand.

The trend of production in this area is apparently being extended northwest and considerable drilling is destined for this area. Continental, Seitz and Comyg's extension discovery is to the northwest of the above mentioned wells, and production is expected to be linked up between this well and those to the southeast.

Continental Oil Co.'s No. 3-E Falls, in the S half of Block 18, Falls County School Lands, Archer County, has proved the largest acid treated producer in the country. It came in for 85 bbls. an hour and was estimated good for 2,000 bbls. per day after treating with 1,000 gallons of acid with a 130-bbl. top oil load, no pressure. The well topped the lime at 1,097 feet and is bottomed at 1,117.5 feet. Many wells in this lime producing area have been treated with acid during the past eight months, the majority responding to the treatment.

Krahenbuhl and Bradley's No. 1 Carrington, in the SW cor. of the B. Carrington 117.5-acre tract in Block 153, Harris County Subdivision, Archer County, was treated with 500 gallons of acid with an 18-bbl. oil load, 800 pounds pressure. It made a good well after treating. Saturated lime was godded from 1,169-77 feet. The well offsets a former small producer since abandoned, and opens a large area to production to the east and southeast into the Jefferson County School Lands.

Pipe line runs in the Wichita Falls district averaged 58,250 bbls. per day during the week, considerably above the daily allowable set by the Railroad Commission, but the purchasing companies are willing to take it.

COMPLETIONS IN PANHANDLE

Gray County

Dixon Creek Oil & Refining Co.'s No. 5 Archer, top pay 3,194-3,234 feet, initial production 413 bbls. daily on five-day pumping test, total depth 3,234 feet.

(Continued on Page 108)

Wildcat Operations in West Texas

Week Ending January 22

Company, well, farm name, section and block—	Remarks:
ANDREWS COUNTY	
Fuhrman Pet. Co.'s No. 1-B Bonner, 1,320 ft. from N line and 1,320 ft. from E line of Sec. 35, Blk. A-43, P.S.L. Sur.	Rig up.
CRANE COUNTY	
Continental Oil Co.'s No. 2-C Cowden, 330 ft. from N line and 1,650 ft. from W line, Sec. 81, Blk. X, C.C.S.D.R.G.&N.G. Sur.	Plugged back to 2,495 ft.; shot 200 qts. from 2,492-2,330 ft.; bridged and cleaning out; T.D. 2,755 ft.
Gulf Prod. Co.'s No. 1 Edwards, 330 ft. from S line and 330 ft. from E line of Sec. 21, Blk. B-18, Public School Land Sur.	Drlg. 3,605 ft.
Storey, Frievele & Duffy's No. 1 G. L. Brown et al, 330 ft. from N and E lines of Sec. 34, Blk. 43, Twp. 4s, T.&P.R.R. Sur.	Location.
CROCKETT COUNTY	
Porter Rankin's No. 1 Todd, 1,500 ft. from N line and 3,020 ft. from E line of Sec. 68, Blk. UV, G.C.&S.F. Sur.	Machine on ground.
ECTOR COUNTY	
Atlantic Oil & Prod. Co.'s No. 1 Holt, 1,980 ft. from N line and 660 ft. from E line of Sec. 19, Blk. A, P.S.L. Sur.	T.D. 4,320 ft.; 1,800 ft. of oil in hole; preparing to swab.
Atlantic Oil & Prod. Co.'s No. 2 Holt, 660 ft. from N line and 1,980 ft. from E line of Sec. 19, Blk. A, P.S.L. Sur.	Location.
Atlantic Oil & Prod. Co.'s No. 1 Jones, 2,310 ft. from N line and 440 ft. from W line of Sec. 36, Blk. 43, Twp. 2s, T.&P. Sur.	Shot 100 qts. 4,270-92 ft.; waiting on test; T.D. 4,299 ft.
Broderick & Calvert's No. 1 Cowden, 1,980 ft. from S line and 1,980 ft. from N line of Sec. 16, Blk. 43, Twp. 2s, T.&P. Sur.	S.D. 2,930 ft.
Continental Oil Co.'s No. 1 Holt, 660 ft. from W and 1,980 ft. from S line of Sec. 20, Blk. A, P.S.L. Sur.	Drlg. 3,485 ft.
Gilpen et al's No. 1 Blakeney, 330 ft. from S, 440 ft. from E line of Sec. 32, Blk. 43, Twp. 1n, T.&P. Sur.	Fishing; T.D. 4,294 ft.; show oil 4,292-94 ft.
Harrison et al's No. 2 Addis, 990 ft. from N line and 2,209 ft. from W line of Sec. 35, Blk. 43, Twp. 2s, T.&P. Sur.	Fishing; T.D. 3,836 ft.
Harrison et al's No. 3 Addis, 1,650 ft. from N line and 2,209 ft. from W line of Sec. 35, Blk. 43, Twp. 2s, T.&P. Sur.	Location.
Humble Oil & Ref. Co.'s No. 1 H. Pegues, 330 ft. from N and 440 ft. from E line of Sec. 38, Blk. 43, T.&P. Sur.	Drlg. 2,805 ft.
Landreth Prod. Co.'s No. 2 O. B. Holt, 660 ft. from S and E lines of Sec. 15, Blk. 43, Twp. 1n, T.&P.R.R. Sur.	Cellar.
Landreth Prod. Co. and Llano Oil Co.'s No. 2 O. B. Holt, 1,980 ft. from W and 1,980 ft. from N. Sec. 20, Blk. A, P.S.L. Sur.	Digging pits.

(Continued on Page 110)

A Crane Plug Valve in a catalog printed 67 years ago

Many an executive in oil and gas fields who has come up from the engineering ranks can remember using Crane plug valves on his first job.

67 years ago, as evidenced by the catalog page above, Crane was making plug valves.

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Disregarding of Injunctions in East Texas District Makes Production Curtailment More Difficult

By L. E. BREDBERG

DALLAS, Tex., Jan. 22.—East Texas can rightfully be called "the field of injunctions." The attorney general's department of Texas, the U. S. Attorney General's department and operators continue to file injunctions, while some other operators break and continue to disregard such injunctions as may have been obtained in the past. One operator is said to have gone so far as to disregard a Federal injunction and other operators and those interested in seeing proration upheld in the field are wondering what will happen to that operator who allegedly so flagrantly side stepped injunctions obtained against him by the State and now has the courage to take issue with the Federal courts. It will be interesting to note the outcome.

On January 19, Charles I. Francis, Special Assistant U. S. Attorney General, filed a petition for a rule to show cause why the Locke Drilling Co. and others should not be punished for contempt of court for allegedly violating a court order restraining the defendants from overproduction of oil in the field. Federal Judge Randolph Bryant issued the temporary restraining order January 11 against this company, and N. S. Locke and C. C. Ashton.

Allege Overproduction

Francis' petition was supported by an affidavit signed by two persons, adjoining leaseholders, who alleged overproduction but said they could not swear to the amount. The petition averred that "with knowledge thereof and in defense of terms of said order, said parties and each of them willfully, wrongly and deliberately disobeyed and violated the same."

Many state injunctions have been filed in the field but it is a matter of common knowledge that many of the violators paid no heed to such injunctions and produced their properties as they formerly had done. These operators have been "getting by" with disregarding state injunctions against them, some of them paying fines imposed when they become too flagrant, but otherwise not being seriously hampered in their actions. Injunction has come to be a mere byword in the field, causing no fear to those threatened with same. However, landowners, royalty owners and other operators in the field have voiced such loud protests against overproducers and their apparent disregard of state statutes and Railroad Commission orders, saying that little was being done to stop overproducing, that the attorney general's department is again snapping into action and has sent another assistant into the field to conduct courts of inquiry to get sufficient data with which to prosecute the alleged violators. On January 18, this assistant to the attorney general, Edward Clark filed eight suits in the District Court at Longview asking injunctions against 10 east Texas oil refiners and operators. The injunction asked would restrain the defendants from delivering, concealing, storing or otherwise handling crude oil not tendered according to state statute. The charges ranged from alleged use of by-passes to illegal transportation and receiving of untendered oil.

There is a state statute against the use of a by-pass in the production and running of oil, and imprisonment can be assessed against a second offender, but so far only one man has been sentenced to jail, and then only for 30 days, for using a by-pass. He is at liberty on bond.

The attorney general's department, both state and Federal, are starting a campaign to put a stop to the production of "hot oil," and it will be interesting to see whether or not overproduction is really stopped in the field, or whether this new action against violators will end like many other such moves have terminated, in little action. However, a receiver has been appointed by District Judge W. C. Hurst, of Longview, for the Barcus & Baggett Oil Co., of Gladewater, in a suit brought by the state attorney general's department, charging the company with producing more than its allowable quota of oil.

The State's suit against the company alleged it not only produced oil in excess of the allowable, but used by-passes and produced oil without flowing it into lease storage tanks, preventing measurement of production. Testimony was presented to support the State's charge that two injunctions previously had been issued against the firm to prevent alleged violation of oil conservation laws and that violations continued, despite court orders in previous suits. This testimony bears out what was mentioned above about operators having little fear of state injunctions and disregarding them at will. Something besides injunctions will have to be used to prevent breaking state oil and gas regulations.

1,900 Violations Reported

Over 1,900 violations were reported to the atorney general's department during 1933. Injunctions were filed on less than one-third of these, and a small number were placed in receivership, all of which did not deter operators from overproducing, as is well known to all interested and watching developments in the field.

A group of men from this section are still in Washington conferring with Secretary Ickes on the "hot oil" situation, and are no doubt mapping out plans for launching a stiff attack on all violators. Results will have to be obtained by the Federal forces and the Railroad Commission's field men, or both bodies will come in for still more censure for their apparent laxness in dealing with the situation.

Marketers in Fort Worth, Dallas and other cities in Texas are still being harassed by cheap competition from East Texas plants. However, when independent stations selling East Texas gasoline for 10 and 11 cents raised their prices back to 15 cents during the past week, aiming to put an end to the price war which has existed in Fort Worth during the past three weeks, the major marketers fought them with their own ammunition and declined to come back to the higher bracket with their third grade gas, the gas which competes with East Texas' cheap gas. This was a bombshell to the small stations, which brought the trouble on themselves.

River Bed Leases

More trouble is brewing in regard to the Sabine River bed leases in Gregg County. The companies holding leases on several tracts in this river bed petitioned the legislature last year for a reduction in royalties on the oil produced from those leases, averring that three-eighths royalty was too much to pay in the face of conditions. An act of the legislature in May, 1933, authorized the State Mineral Board to amend the original contracts and accept one-fourth instead of three-eighths royalty. On January 18 Attorney General Allred defended four mandamus actions brought to compel him to approve the amended contracts for oil development in the stream bed. Mr. Allred held that the legislature had no power to authorize such a reduction of royalty and refused to approve the revised contracts. The act required his approval before the new contracts could be effective.

There are more than 100 wells located in the river bed, and more than $100,000 is now being held waiting a decision. The Rhoads Drilling Co. of Fort Worth holds leases on the majority of the river bed in Gregg County.

East Central Texas Wildcats

Week Ending January 22

ANDERSON COUNTY

Company, well, farm name, section and block—	Remarks
Standard of Kansas' No. 1 A. W. Johnson, 565 ft. from N line, 420 ft. from E and W lines of 22.8-ac. tract, Simon Sanches Sur.	Derrick.
Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 2 Long Lake Plantation, 1,846 ft. due W of Tide Water and Texas Seaboard Oil Co.'s No. 1 Long Lake, Simon Sanches Sur.	Standing; plugged back to 5,260 ft.; T.D. 5,352 ft.
Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 3 Long Lake Plantation, 2,732 ft. S of No. 1, 2,799 ft. E at R/A, Simon Sanches Sur. No. 1	Coring 5,449 ft.

BOWIE COUNTY

R. W. Lynn and W. R. Rolfe's No. 1 Mrs. R. D. Hart, 330 ft. out of NE cor. of Hart 20-ac. tract, 1 mile E of Nash, Thomas Price Sur.	Location.

CHEROKEE COUNTY

A. R. Lewis et al's No. 1 J. Bradford, 1,600 ft. from W line and 200 ft. from N line of 50-ac. tract, J. Laprella Sur.	Derrick.
A. F. Richardson's No. 1 P. Wood, 660 ft. from N line, 3,300 ft. from E line of 495-ac. tract, 14 miles E of Jacksonville, on Cherokee-Rusk County line, Ignacio Sanches Sur.	Derrick.

ELLIS COUNTY

Beckham et al's No. 1 L. S. R. Wood, 150 ft. from N line, 330 ft. from E line of Wood 186-ac. tract, A. D. Lagarza Sur.	Rig up.

FRANKLIN COUNTY

Van Emon et al's No. 1 O. S. Maxton, 910 varas W, 910 varas S of NE cor. of survey, John Brown Sur.	Derrick.

FREESTONE COUNTY

Clyde Creighton's No. 1 Holly Bros., 854 ft. from W and center N and S lines of lease, A.B.&M. Sur.	T.D. 5,260 ft.
Hughes et al's No. 1 H. A. Shaw, 330 ft. out of NE cor. of H. A. Shaw 138-ac. tract, Simon Sanches Sur. No. 5	Location.

(Continued on Page 110)

There were 68 completions in the field this week and 66 new locations were staked, locations and completions both falling slightly under reports of the past several months.

Pipe Line Runs

Runs and connections of the 12 largest transporters in the field show as follows on the latest pipe line report from the field:

	Bbls.	Connected to wells
Arkansas Pipe Line Co.	10,645	323
Atlantic Pipe Line Co.	23,510	600
Empire Pipe Line Co.	13,405	357
Gulf Pipe Line Co.	32,079	935
Humble Pipe Line Co.	40,870	1,310
Magnolia Pipe Line Co.	31,110	972
Shell Pipe Line Co.	23,235	677
Sinclair Prairie P. L. Co.	34,995	1,141
Sun Pipe Line Co.	26,732	775
Tidal Pipe Line Co.	18,160	591
Texas Pipe Line Co.	11,310	389
Illinois Pipe Line Co.	9,045	340

Daily average reported pipe line shipments from the field for the week ending January 18 were 395,135 bbls. Shipments to local refineries averaged 52,025 bbls. There are 17 refineries still shut down in the field. Daily average runs over and above reported production were 63,740 bbls.

New Cracking Unit

The McMurrey Brothers are installing a cracking unit at their plant between Overton and Arp. The Toronto Pipe Line Co. is taking current runs from the Acme Pipe Line Co. (McMurrey Brothers) and the Magnolia Pipe Line Co. is connected with that line and taking the oil in turn.

The Minor Pipe Line Co. has been formed by J. B. Sowell, Tom Sowell, Fred Upchurch, H. Toller and C. B. Burton, to construct a 6-mile pipe line to connect six wells with the Trinity Refining Co. plant at Gladewater.

The Owl Refining Co., owning two refineries in East Texas, was granted a restraining order by Judge Wheeler's court in Travis County, to prevent the comptroller's department and attorney general's department from shutting down its plants for failure to purchase bond and secure a 1934 permit to operate. This decision will no doubt be contested by the two defending departments named in the suit.

Among the Wildcats

Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 2 Monnig (Long Lake), in the Simon Sanchez Survey, southwestern Anderson County, made 93 gallons of distillate on a four-hour test. The present total depth is 5,260 feet to where it was plugged back from 5,352 feet. It is definitely conceded a gasser.

The same companies' No. 3 Monnig, in the same survey, was drilled to a total depth of 5,449 feet in water sand and plugged back to 5,250 feet during the week. It is waiting for cement to set.

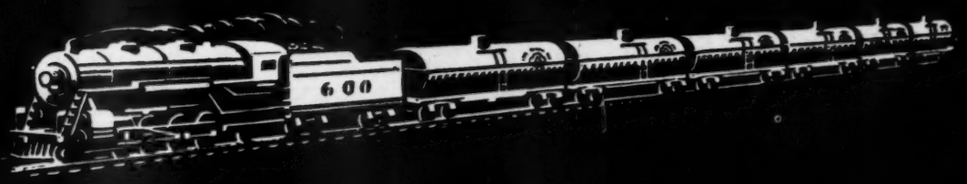
Location for a fourth test has been staked by the two companies on the Long Lake block, but up to this writing no announcement has been made giving details on same.

Shell Petroleum Corp. and others' No. 1 Jones, in the Summeralls Survey, Leon County, topped the Austin chalk this week at 5,131 feet or at minus 4,738 feet. This is 49 feet lower than the formation was topped in the Beggs test to the south, and 64 feet higher than the same companies' No. 1 Phillips to the north. No. 1 Jones is drilling ahead at 5,425 feet in chalk.

The same companies' No. 1 Lee, in the William Cooper Survey, to the north-

From a can of cup grease

...to a trainload of gasolene



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CITIES SERVICE OIL COMPANY OF WIS.	Milwaukee, Wis.
CREW LEVICK COMPANY	Philadelphia, Pa.
EMPIRE OIL AND REFINING COMPANY	Tulsa, Okla.
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(LORECO petroleum products)	

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Cities Service Oils and Gasolene

east, in Leon County, is reaming to set 13⅝-inch casing. Total depth is 2,580 feet.

E. L. Smith Oil Co.'s No. 1 Simpson, in the Alfred Penn Survey, about 11 miles north of the above named tests, in Leon County, is drilling in lower Taylor according to a paleontologist. It is down 5,588 feet. Austin chalk was reported by the driller, but this apparently was an error. This test is too deep to make an oil producer from the Woodbine.

Shell Petroleum Corp. and others' No. 1 Beggs, the discovery gasser in the Swayze Survey, Leon County, is making 5 bbls. of distillate per day from 1,000,000 feet of gas.

New Wildcat Locations

There were three wildcat locations staked in the East Texas district during the week. These were Roy Black and others' No. 1 C. B. Meredith, in the Wiley Kay Survey, Henderson County. It is 4 miles southeast of Malakoff. Cole and others' No. 1 J. M. McFadden, in the Joseph Dick Survey, 10 miles northwest of Paris in Lamar County, is an old well to be drilled deeper from a total depth of 2,506 feet. J. Rodgers and others' No. 1 Vol DeLone, in the Pedro Varela Survey, Limestone County, has a derrick up.

Cauble & Thompson's No. 1 N. G. Bobbett, in the Daniel Fuller Survey, is fishing tools with total depth at 4,636 feet. It cored hard dark calcareous shale from 4,572-82 feet. This test was shut down for some time but the operators are now apparently prepared to complete same.

J. O. Griffith and others' No. 1 Bruce, in the G. Martinez Survey, Van Zandt County wildcat, is fishing tools. Total depth is 1,665 feet.

Another test has been proposed about 4 miles east of Elkhart in Anderson County, but definite location has not yet been announced. It will probably be on Southern Pine Lumber Co. fee land.

COMPLETIONS IN EAST TEXAS

North Gregg County

Atlantic Oil Producing Co.'s No. 9 T. B. Harris, top sand 3,505 feet, initial production 35 bbls. in one-quarter hour through open tubing, total depth 3,551 feet; No. 17 Turner, top sand 3,554 feet, initial production 40 bbls. in one-quarter hour through open tubing, total depth 3,610 feet; No. 19 Turner, top sand 3,488 feet, initial production 35 bbls. in one-quarter hour through open tubing, total depth 3,555 feet. Atlantic and Sun Oil Co.'s No. 46 Martin Hayes, top sand 3,507 feet, initial production 35 bbls. in one-quarter hour through open tubing, total depth 3,545 feet. Bond and Dillard's No. 1 J. C. Barrett, top sand 3,638 feet, initial production 150 bbls. per hour through open tubing, total depth 3,680 feet. Delaney and Stoddard's No. 5 McKinley, top sand 3,638 feet, initial production 38 bbls. in one-half hour through open tubing, total depth 3,654 feet. East Texas Refining Co.'s No. 14 Hindman and Guy, top sand 3,643 feet, initial production 40 bbls. in 25 minutes, total depth 3,668 feet. McCurday and Carr's No. 4 Richey, top sand 3,532 feet, initial production 80 bbls. in 45 minutes through open tubing, total depth 3,553 feet. Magnolia Petroleum Co.'s No. 14 Jones, top sand 3,652 feet, initial production 120 bbls. per hour through open tubing, total depth 3,671 feet. F. W. Merrick's No. 3-B W. B. Nicholson, top sand 3,630 feet, initial production 18 bbls. in one-quarter hour through open tubing, total depth 3,647 feet.

Shell Petroleum Corp.'s No. 13 A. M. and B. N. King, top sand 3,572 feet, initial production 48 bbls. in one-half hour through open tubing, total depth 3,640 feet. Sun Oil Co.'s No. 4 S. J. Boles, top sand 3,552 feet, initial production 57 bbls. in 50 minutes through open tubing, total depth 3,616 feet. Tide Water Oil Co.'s No. 8 Christian, top sand 3,562 feet, initial production 10 bbls. in 10 minutes through open tubing, total depth 3,589 feet. Western States Oil Co.'s No. 3 Baulknight, top sand 3,602 feet, initial production 40 bbls. in one-half hour through open tubing, total depth 3,662 feet. Woodley, Atlantic and Sun Oil Co.'s No. 7-C Hayes, top sand 3,505 feet, initial production 100 bbls. per hour through open tubing, total depth 3,524 feet. Yount Lee Oil Co.'s No. 8 Flemister, top sand 3,560 feet, initial production 58 bbls. per hour through eleven-sixteenths inch tubing choke, total depth 3,580 feet; No. 6 Tuttle, top sand 3,576 feet, initial production 60 bbls. per hour through eleven-sixteenths inch tubing choke, total depth 3,597 feet.

South Gregg County

American Liberty Oil Co.'s No. 13 L. P. Griffin, top sand 3,552 feet, initial production 100 bbls. per hour through open tubing, total depth 3,558 feet. Atlantic Oil Producing Co.'s No. 12-A Andrews, top sand 3,568 feet, initial production 65 bbls. in one-half hour through open tubing, total depth 3,586 feet. Gulf Production Co.'s No. 16 Brown, top sand 3,484 feet, initial production 85 bbls. per hour through open tubing, total depth 3,510 feet. J. D. Hall and others' No. 1 G. U. Utzman, top sand 3,515 feet, initial production 20 bbls. in three hours pumping, total depth 3,618 feet. Johnson and Owens' No. 3-C M. T. Cole, top sand 3,490 feet, initial production 140 bbls. per hour through open tubing, total depth 3,515 feet. Rhoads Drilling Co.'s No. 18 Sabine River, top sand 3,520 feet, initial production 50 bbls. in 50 minutes through open tubing, total depth 3,540 feet; No. 8 Sabine River, top sand 3,467 feet, initial production 50 bbls. in one-half hour through open tubing, total depth 3,489 feet.

Shell Petroleum Corp.'s No. 9 Bates, top sand 3,561 feet, initial production 31 bbls. in 30 minutes through open tubing, total depth 3,621 feet; No. 36 J. B. Watson, top sand 3,579 feet, initial production 30 bbls. in one-quarter hour through open tubing, total depth 3,686 feet. Sinclair Prairie Oil Co.'s No. 17 A. A. Lockhart, top sand 3,656 feet, initial production 25 bbls. in one-quarter hour through open tubing, total depth 3,666 feet. Sun Oil Co.'s No. 15 M. T. Cole, top sand 3,522 feet, initial production 59 bbls. per hour through 1½-inch tubing choke, total depth 3,542 feet; No. 14 Charles Lloyd, top sand 3,634 feet, initial production 45 bbls. per hour through open tubing, total depth 3,644 feet. Tide Water Oil Co.'s No. 8 Clayton, top sand 3,587 feet, initial production 8 bbls. in five minutes through open tubing, total depth 3,614 feet.

North Rusk County

Bowles Oil Co.'s No. 10 Dick Wells, top sand 3,662 feet, initial production 40 bbls. per hour through open tubing, total depth 3,696 feet. East Texas Refining Co.'s No. 1 W. Starr, top sand 3,678 feet, initial production 30 bbls. in three hours pumping, total depth 3,754 feet. Humble Oil & Refining Co.'s No. 91 L. D. Crim, top sand 3,645 feet, initial production 116 bbls. per hour through open tubing, total depth 3,674 feet; No. 5-A Ladd, top sand 3,692 feet, initial production 88 bbls. per hour through open tubing, total depth 3,717 feet; No. 9-A Ben Laird, top sand 3,611 feet, initial production 80 bbls. per hour through open tubing, total depth 3,636 feet; No. 6-B Ben Laird, top sand 3,678 feet, initial production 90 bbls. per hour through open tubing, total depth 3,717 feet; No. 32-B S. S. Laird, top sand 3,585 feet, initial production 86 bbls. per hour through open tubing, total depth 3,637 feet; No. 42-B S. S. Laird, top sand 3,571 feet, initial production 70 bbls. per hour through open tubing, total depth 3,628 feet.

Marine Oil Corp.'s No. 6 Nat Bean, top sand 3,578 feet, initial production 80 bbls. in 40 minutes through open tubing, total depth 3,598 feet. Tide Water Oil Co.'s No. 6 William Jernigan, top sand 3,659 feet, initial production 30 bbls. in one-quarter hour through open tubing, total depth 3,675 feet. Tide Water Oil Co.'s No. 12 H. P. Leverett, top sand 3,687 feet, initial production 30 bbls. in one-quarter hour through open tubing, total depth 3,695 feet. Westheimer and Daube's No. 7 D. M. Peterson, top sand 3,662 feet, initial production 95 bbls. per hour through open tubing, total depth 3,698 feet.

South Rusk County

Champlin and Bass' No. 4 R. G. Mason, top sand 3,634 feet, initial production 31 bbls. in one-quarter hour through open tubing, total depth 3,662 feet. E. E. Combs' No. 6-B Fox, top sand 3,670 feet, initial production 70 bbls. per hour through open tubing, total depth 3,690 feet. R. H. Dearing & Son's No. 6 A. P. Finney, top sand 3,592 feet, initial production 27 bbls. in 33 minutes through open tubing, total depth 3,648 feet. East Texas Refining Co.'s No. 3-C Ras Pool, top sand 3,689 feet, initial production 22 bbls. in one-quarter hour through open tubing, total depth 3,725 feet. Humble Oil & Refining Co.'s No. 34 W. L. Pace, top sand 3,666 feet, initial production 70 bbls. per hour through three-quarters inch tubing choke, total depth 3,749 feet; No. 5-C R. E. L. Silvey, top sand 3,726 feet, initial production 70 bbls. per hour through three-quarters inch tubing choke, total depth 3,746 feet. Hunt Production Co.'s No. 9 Reid, top sand 3,678 feet, initial production 25 bbls. in 22 minutes through open tubing, total depth 3,710 feet. Great States Oil Co.'s No. 2 D. C. Joiner, top sand 3,724 feet, initial production 70 bbls. per hour through open tubing, total depth 3,727 feet. Lion Oil & Refining Co.'s No. 7-A Brooks, top sand 3,615 feet, initial production 60 bbls. per hour through open tubing, total depth 3,687 feet.

Mid-Kansas Oil & Gas Co.'s No. 69 Cross, top sand 3,623 feet, initial production 80 bbls. per hour through open tubing, total depth 3,630 feet; No. 52 W. T. Grissom, top sand 3,661 feet, initial production 88 bbls. per hour through open tubing, total depth 3,664 feet; No. 60 W. T. Grissom, top sand 3,640 feet, initial production 85 bbls. per hour through open tubing, total depth 3,660 feet. Ortiz Oil Co.'s No. 3-A Tolliver, top sand 3,673 feet, initial production 35 bbls. per hour through open tubing, total depth 3,727 feet; No. 4-A Tolliver, top sand 3,680 feet, initial production 30 bbls. per hour through open tubing, total depth 3,812 feet. Shaw & Sheps' No. 24 Stoddard, top sand 3,560 feet, initial production 15 bbls. in one-half hour through open tubing, total depth 3,636 feet. Sinclair Prairie Oil Co.'s No. 6-B Mayfield, top sand 3,606 feet, initial production 33 bbls. in one-quarter hour through open tubing, total depth 3,606 feet. Great States Oil Co.'s No. 2 Giles, top sand 3,698 feet, initial production 100 bbls. per hour through open tubing, total depth 3,727 feet. Southern Production Co.'s No. 4 Giles, top sand 3,614 feet, initial production 65 bbls. per hour through open tubing, total depth 3,642 feet.

Smith County

R. J. McMurray's No. 4 F. Cole, top sand 3,768 feet, initial production 60 bbls. per hour through open tubing, total depth 3,770 feet.

Upshur County

Atlantic Oil Producing Co.'s No. 13 Mayers, top sand 3,599 feet, initial production 80 bbls. in one-half hour through open tubing, total depth 3,625 feet. Humble Oil & Refining Co.'s No. 6 Phillips, top sand 3,640 feet, initial production 13 bbls. in one-quarter hour through open tubing, total depth 3,675 feet. B. F. Phillips' No. 1 R. R. Cookel, top sand 3,662 feet, initial production 30 bbls. in 30 minutes, now reported dead, total depth 3,668 feet. Sun Oil Co.'s No. 4 A. J. Watkins, top sand 3,682 feet, initial production 11 bbls. in one-quarter hour through open tubing, total depth 3,697 feet. J. E. Watts' No. 2 Eva O'Byrne, top sand 3,762 feet, initial production 50 bbls. per day swabbing, total depth 3,793 feet.

WILDCAT COMPLETIONS

Freestone County

Daniels Oil & Royalty Co.'s No. 1 T. F. Young, Jr., top Pecan Gap, 2,595 feet, base 2,767 feet, top Austin chalk, 3,543 feet, base 3,896 feet, top sand 4,372 feet, dry and abandoned, total depth 4,469 feet, L. Liggins Survey.

Morris County

Buckhanan and others' No. 2 Staggers, abandoned location.

Rusk County

George Hudson's No. 1-A Jeff Phillips, junked and abandoned, total depth 2,950 feet, Vallareall Survey.

West Texas Fields

(Continued from Page 104)

Phillips Petroleum Co.'s No. 4 Jackson (old well drilled deeper), old total depth 3,025 feet, new total depth 3,090 feet, initial production 100 bbls. per day on three-day pumping test. Sinclair Prairie Oil Co.'s No. 1 Langham (old well drilled deeper), old total depth 2,915 feet, new total depth 3,050 feet, initial production 123 bbls. on pump. Southern Petroleum Exploration Co.'s No. 5 McConnell, top pay 3,158-70 feet, initial production 35 bbls. daily on four-day pumping test, total depth 3,296 feet. Sun Oil Co.'s No. 2-B Combs-Worley, top pay 2,926-34 feet, initial production 577 bbls. of oil per day flowing on gas lift on Railroad Commission's five-day proration test, total depth 2,988 feet. Wilcox Oil & Gas Co.'s No. 24 Combs-Worley, top pay 2,969-74 feet, initial production 164 bbls. flowing, total depth 2,974 feet.

Carson County

E. S. Fentress' No. 1 T. H. Barnard, top pay 2,470-2,706 feet, initial production 45,000,000 feet of gas, total depth 2,706 feet. Reiger and others' No. 1 Foster, dry and abandoned, total depth 3,227 feet.

COMPLETIONS IN WEST TEXAS

Glasscock County

N. T. Lawson and others' No. 5-B Edwards, abandoned location.

Howard County

F. A. Frazier and others' No. 1 G. T. Hall, oil pay 2,440-47 feet, initial production 20 bbls. per day pumping, total depth 2,974 feet. Merrick & Lamb's No. 9 Chalk, top pay, 1,736-1,812 feet, initial production 6 bbls. per hour pumping, total depth 1,833 feet.

Loving County

J. D. Goulette, Jr., and others' No. 1 W. D. Johnson, abandoned, total depth 315 feet.

Pecos County

Mid-Kansas Oil & Gas Co.'s No. 2 Turner, initial production 2,102 bbls. per hour, total depth 1,525 feet.

Runnels County

Golden Petroleum Co.'s No. 2 McMillan, top sand 2,525 feet, increase at 2,530-31 feet, initial production 400 bbls. per day flowing, total depth 2,531 feet.

Ward County

Prince Brothers' No. 2-B Hall-Roberts, abandoned location. California Co.'s No. 2 J. F. York, top pay 2,360 feet, increase at 2,482 feet, initial production 158 bbls. per day, total depth 2,554 feet.

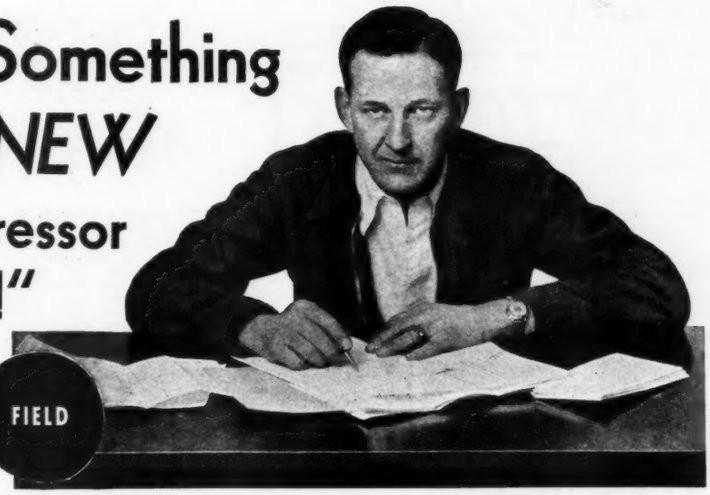
Winkler County

Sid Richardson's No. 1-B Scarborough, completed as 15,000,000-foot gasser, total depth 2,764 feet; No. 2 State-Scarborough, top pay 2,854 feet, increase at 3,015 feet, initial production flowing 50 bbls. per day, total depth 3,065 feet.

INVITE TEST SUITS

CHICAGO, Jan. 20.—In response to widespread complaint of oil code violations in the Central States, officials of the Interior Department and the Federal district attorney here are planning immediate action, following conferences here in the last few days. Charges to be first pressed are principally on wage and hours regulations, sales below posted price, giving concessions, substitution of grades and tax evasion.

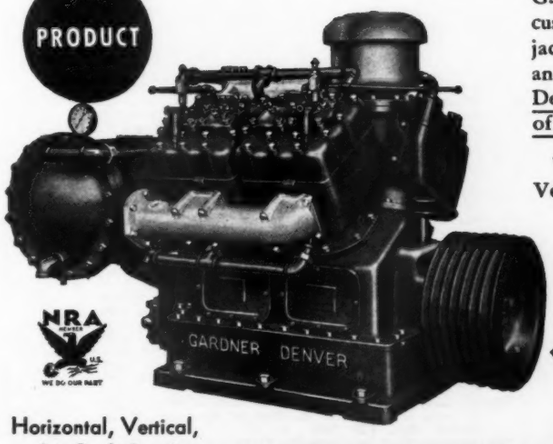
"Show Me Something *ENTIRELY NEW* in Air Compressor Economy!"



FIELD

DESIGN

PRODUCT



"Beat your own records for air compressor economy. Give us *still lower* first cost . . . *still lower* installation and maintenance costs!"

From the field came that demand. It was a mighty big order—but Gardner-Denver filled it. So here are the NEW Gardner-Denver Vertical Compressors, the most amazing cost-cutters in air compressor history!

The NEW Gardner-Denver Verticals are priced 25% LOWER than horizontals of the same capacity, yet they deliver every bit as much air. Installation cost is ⅔ LOWER. Maintenance cost is 25% to 50% LESS. And you make a valuable saving in floor space!

Gardner-Denver Quality Throughout!

These NEW Verticals have all of the quality you expect from Gardner-Denver. You'll find such outstanding features as cushioned inlet and discharge valves . . . extra large water-jackets . . . water-cooled intercooler . . . rotary oil pump and pressure feed lubrication. No wonder!—for Gardner-Denver is America's oldest and most experienced builder of high-speed vertical water-cooled compressors.

Write for free bulletin on the NEW Gardner-Denver Vertical Compressors. Get the money-saving facts!

GARDNER-DENVER COMPANY
114 Williamson St. Quincy, Ill.

NEW GARDNER-DENVER "ABH" COMPRESSOR

Horizontal, Vertical, Air-Cooled and Portable Compressors —Steam and Power Pumps —Rock Drills, Accessories— Paving Breakers— Clay Diggers—Hoists

GARDNER-DENVER

MAKES AIR DO MORE AND COST LESS

East Central Texas Wildcats

(Continued from Page 106)

GREGG COUNTY

C. H. Lyons et al's No. 1 Cooke, 330 ft. from N line of lease and S offset to Lyons' No. 1, W. R. Stephens Sur. ..... Derrick.

Max Rubin's No. 1 Sam Burton, 330 ft. out of NW cor. of 100-ac. lease, D. Sanches Sur. ..... Building derrick.

Paul T. Rutledge's No. 1 M. T. Cole, 1,981 ft. S, 373 ft. E of NE cor. of Tide Water's Lacy lease, M. T. Cole Sur. ..... Drlg. 2,350 ft.

Teton Oil Co.'s No. 1 E. Stell et al, 330 ft. from N line, 50 ft. from W line of 119.92-ac. tract, John Wilkerson Sur. ..... T.D. 3,552 ft.; 2,000 ft. of fluid in hole.

HENDERSON COUNTY

Roy Black et al's No. 1 C. B. Meredith, 360 ft. from N and W lines of 64.5-ac. tract, 4 miles SE of Malakoff, Wiley Kay Sur. ..... Location.

Campbell and Champlin's No. 1 R. S. Ansley, 108 varas S, 623 varas W of NE cor. of lease, 6 miles SE of Buffalo, N. H. Thompson Sur. ..... Derrick.

HUNT COUNTY

Meade and McKennie's No. 1 Love, 300 ft. from N line, 6,300 ft. from W line of 95-ac. tract, John Gillisky Sur. ..... Rig up.

LAMAR COUNTY

Cole et al's (formerly Optometrist Oil Club) No. 1 J. M. McFaddin, 450 ft. from S and W lines of E 25-ac. tract, 10 miles NW of Paris, Joseph Dick Sur. ..... Old well to be drilled deeper; T.D. 2,506 ft.

LEON COUNTY

Cooper et al's No. 1 W. H. Cozart, 1,000 ft. from SE cor. of 266-ac. tract in SW part of county, Thomas Gardner Sur. ..... Derrick blew down.

Gholson Drilling Co.'s No. 1 Alliance Trust Co., 330 ft. S and E of Humble's Alliance Trust Co. 3,000-ac. tract, Simon Sanches Sur. No. 9 ..... Location.

Shell Petroleum Corp.'s No. 1 J. N. Jones, 300 ft. from N line of survey and 1,000 ft. from E line of survey, J. F. Summerall Sur. ..... Fishing 5,194 ft.

Shell Petroleum Corp.'s No. 1 Lee, 1,500 ft. from NW and SW line of farm and survey, William Cooper Sur. ..... Drlg. 2,132 ft.

R. L. Smith's No. 1 W. P. Simpson, 1,320 ft. from S and E lines of survey, Alfred Penn Sur. No. 693 ... Drlg. 5,480 ft.

Standard Oil Co. of Kansas' No. 1 A. W. Johnson, 466 ft. from NE line, 466 ft. from NW line of 100-ac. tract, Simon Sanches Sur. No. 7 ..... Location.

LIMESTONE COUNTY

J. Rodgers et al's No. 1 Vol DeLone, 1,516 ft. from W line and 600 ft. from N line of W 100-ac. tract, Pedro Varela Sur. ..... Derrick.

RAINES COUNTY

J. W. Halsell et al's No. 1 P. F. Jones, 400 ft. out of SW cor. of 22-ac. tract, 2½ miles S of Alba, B.B. B.&C. Sur. ..... Derrick.

RUSK COUNTY

Perry et al's No. 1 Brown and Chisum, 150 ft. E and 2,650 ft. N of SW cor. of survey, L. M. Sparks Sur. .. S.D. 300 ft.

Sanders et al's No. 1 M. Lee, 2,300 ft. from N line and 1,975 ft. from E line of survey, J. H. Sparks Sur. .... Fishing 1,050 ft.

UPSHUR COUNTY

Mansell et al's No. 1 C. B. Mackey, 2,480 ft. from N line, 3,340 ft. from E line of survey, J. M. Pinedo Sur. ..... Swabbing little oil; T.D. 3,737 ft.

B. F. Phillips et al's No. 1 D. A. Fleet, SE cor. of B. Holloway Sur., Charles Cooper Sur. ..... Derrick.

VAN ZANDT COUNTY

Gillum and Allen et al's No. 1 A. T. Bass, 450 ft. from W line and 150 ft. from N line of 10-ac. tract, William Hart Sur. ..... Location.

Griffith Bros.' No. 1 Bruce, 1,000 ft. from S line and 330 ft. from E line of 124-ac. tract, G. Martinez Sur. ..... Location.

Humble O. & R. Co.'s No. 1 S. R. Ray, 200 ft. S, 160 ft. W of J. D. Listenbee 20-ac. lease in Nacogdoches County School Lands Sur. ..... Waiting on pumping equipment; T.D. 1,237 ft.

Pure Oil Co.'s No. 9 W. F. Swain, 300 ft. S of N line and 450 ft. E of W line of W. F. Swain 40-ac. tract, John Walling Sur. ..... Cmt. setting 312 ft.

Pure Oil Co.'s No. 3 Ray, 250 ft. N of S line and 182 ft. W of E line of tract, Nacogdoches County School Land Sur., elevation 449.7 ft. ..... Location.

Ray Drlg. Co.'s No. 1 J. W. Mallory, 1,150 ft. from S line, 150 ft. from W line of 217-ac. tract, John Walling Sur. ..... Derrick.

Tom Sharp et al's No. 1-A M. L. Cox, 1,875 ft. from SE line and 1,800 ft. from SW line of 300-ac. tract, O. C. Nugent Sur. ..... S.D. 1,250 ft.

WOOD COUNTY

D. T. Cauble and Thompson's No. 1 N. G. Bobett, 650 ft. from S line and 220 ft. from W line of tract, 2½ miles NW of Mineola, Daniel Fuller Sur. ..... Drlg. 4,416 ft.

Wildcat Operations in West Texas

(Continued from Page 104)

Stanolind Oil & Gas Co.'s No. 3 E. F. Cowden, 2,275½ ft. E and 330 ft. from S line, Sec. 36, Blk. 43, Twp. 2s, T.&P.R.R. Sur. ..... Cellar.

Stanolind Oil & Gas Co.'s No. 4 J. M. Cowden, 660 ft. from N and 1,980 ft. from E line of Sec. 37, Blk. 43, Twp. 1n, T.&P. Sur. ..... Derrick.

Stanolind Oil & Gas Co.'s No. 5 J. M. Cowden, 660 ft. from N and 1,980 ft. from E line of Sec. 34, Blk. 43, Twp. 1n, T.&P. Sur. ..... Moving in material.

Fred Turner's No. 1-A Addie, 2,310 ft. from N and 440 ft. from E of Sec. 35, Blk. 43, Twp. 2s, T.&P. Sur. ... Completed water well.

FISHER COUNTY

Cranfill & Reynolds' No. 3 J. H. Young, 330 ft. W and 330 ft. S of NE cor. of survey, Sec. 208, B.B.B.&C. Sur. ..... Drlg. 1,620 ft.

Sinclair Prairie Oil Co.'s No. 3 Frank Steele, 996 ft. from N and 330 ft. from E line of Sec. 72, Blk. 1, H.&T.C. Sur. ..... Bldg. rig.

Stanolind Oil & Gas Co.'s No. 3 F. Steele, 660 ft. from S and 2,310 ft. from W line of Sec. 210, Blk. 1, B.B.B.&C. Sur. ..... Waiting on cmt. to set; T.D. 810 ft.

Merry Bros. and Perini's No. 1 J. J. Steele, 330 ft. E and 150 ft. N of SW cor. NE Sec. 216, B.B.B.&C. R.R. Sur. ..... S.D. for storage; T.D. 2,932 ft.

Mid-Continent Petroleum Corp.'s No. 2 Pardue, 672 ft. from N and 330 ft. from E line of Sec. 202, B.B.B. &C. Sur., Blk. 1 ..... 450 ft. of oil in hole; T.D. 3,103 ft.

E. L. Smith Oil Co.'s No. 1 fee, 450 ft. from S and 330 ft. from E, Sec. 203, Blk. 1, B.B.B.&C. Sur. ..... Drlg. 125 ft.

Southern's No. 1 King, 660 ft. from N and 330 ft. from W line of SW Sec. 192, B.B.B.&C. Sur. ..... Drlg. 1,130 ft.

Texas Inland Oil & Gas Co.'s No. 1 First National Bank of Hamlin, 1,980 ft. from N and 990 ft. from W, Sec. 191, Blk. 1, B.B.B.&C. Sur. ..... Drlg. 2,510 ft.

Texas Co.'s No. 4 T. A. Jean, 990 ft. from N and E lines of Sec. 201, Blk. 1, B.B.B.&C. Sur. ..... Rig up.

GAINES COUNTY

R. H. Gill et al's No. 1 Crews, 1,320 ft. from S and 1,320 ft. from W line of Sec. 9, Blk. A-20, P.S.L. Sur... Drlg. 3,020 ft.

GLASSCOCK COUNTY

Continental Oil Co.'s No. 1 Gilbreath, 330 ft. from N line and 1,980 ft. from E line of Sec. 24, Blk. 33, Twp. 2s, T.&P.R.R. Sur. ..... Tested 1½ bailers of oil in 4 hrs.; may treat with acid; T.D. 2,530 ft.

Empire Gas & Fuel Oil Co.'s No. 2 Hall, 330 ft. from N and W lines of Sec. 21, Blk. 33, Twp. 2s, T.&P. Sur. ..... Cleaning out; T.D. 915 ft.

Humble Oil & Ref. Co.'s No. 2 Washer, 330 ft. from N and 1,650 ft. from E line of Sec. 20, Blk. 33, Twp. 2s, T.&P. Sur. ..... Drlg. 1,610 ft.

Humble Oil & Ref. Co.'s No. 4 Arrington, 330 ft. from N line and 990 ft. from W line, Sec. 23, Blk. 33, Twp. 2s, T.&P. Sur. ..... Cmtd. csg. at 2,082 ft.

Lawson et al's No. 1-C Edwards, 1,320 ft. from E and 1,323 ft. from S line of Sec. 16, Blk. 33, Twp. 2s, T.&P. Sur. ..... T.P. 2,160-70 ft.; increase at 2,198-2,202 ft.; treated with acid; pumped 54 bbls. first hour; T.D. 2,202 ft.

Simms Oil Co.'s No. 4-A Coffee, 1,357 ft. from W and 1,370 ft. from S, Sec. 15, Blk. 33, Twp. 2s ..... Drlg. 1,860 ft.

HOWARD COUNTY

L. C. Harrison et al's No. 2 Texas Land & Mortgage Co. 2,310 ft. from E line and 330 ft. from the S line of Sec. 4, T.&P.R.R. Sur., Blk. 30, Twp. 1s ..... Location

Humble Oil & Ref. Co.'s No. 2 Settles, 990 ft. from W and 330 ft. from S, Sec. 132, Blk. 29, W.&N.W. Sur. ... Location.

Merrick & Lamb's No. 10 Chalk, 1,650 ft. from W and 2,310 ft. from N, Sec. 126, Blk. 29, W.&N.W. Sur. .... Rig up.

Pure Oil Co.'s No. 14 Chalk, 1,650 ft. from N and 2,310 ft. from E, Sec. 125, Blk. 29, W.&N.W. Sur. ..... Moving in material.

Joe Rusk et al's No. 2 G. M. Dodge Estate, 330 ft. from N line and 2,310 ft. from the E line of Sec. 9, H.&T.C.R.R. Sur., Blk. 30, Twp. 2s ..... Cmtd. csg.; T.D. 2,228 ft.

Schermerhorn Oil Co.'s No. 8 Kloh, 1,650 ft. from S and 330 ft. from W, Sec. 13, Blk. 23, Twp. 2s, T.&P.R.R. Sur. ..... Rigging up.

Sinclair Prairie Oil Co.'s No. 1 Perry Jones, 2,310 ft. from W and 330 ft. from N, Sec. 9, Blk. 30, Twp. 1s, T.&P.R.R. Sur. ..... Bldg. rig.

Sinclair Prairie Oil Co.'s No. 10 Dodge, 2,310 ft. from S and 330 ft. from E, Sec. 1, Blk. 30, Twp. 1s, T.&P. R.R. Sur. ..... Prepare to spud.

Southern Oil Co.'s No. 1 Denman, 2,310 ft. from N line and 330 ft. from W line of Sec. 10, Blk. 30, Twp. 1s, T.&P.R.R. Sur. ..... Drlg. 1,825 ft.

Sun Oil Co.'s No. 6 Phillips, 1,650 ft. from S and 330 ft. from E, Sec. 14, Blk. 33, Twp. 2s, T.&P.R.R. ..... Bldg. rig.

Ungren & Frazier's No. 1 Davis, 330 ft. from S line and 990 ft. from W line of Sec. 2, Blk. 30, Twp. 1s, T.&P. Sur. ..... Drlg. 2,735 ft.; swabbing 50 bbls. per day while drilling.

IRION COUNTY

S. E. Colgin's No. 1 Tankersley, 200 ft. S and 433 ft. W of the NE cor. of H. F. Ottmer Sur. No. 720 ..... Drlg. 960 ft.

Williams-Short's No. 1 Gentry, 2,200 ft. from N line and 2,050 ft. from W line of Sec. 1, Blk. 3, H.&T.C. Sur... Fishing 835 ft.

JONES COUNTY

Clay & Lancaster's No. 2 Brewer, 700 ft. S and 150 ft. E of NW cor. of J. W. Martin Sur. ..... Derrick.

Jack Roberts' No. 2 Swann, 2,200 ft. from N and 1,600 ft. W of SE cor. of I. Milley Sur. ..... Drlg. 2,275 ft.

LOVING COUNTY

R. L. Allen's No. 1 fee, 4,290 ft. from NE line, 330 ft. from SE line, Sec. 82, H.&T.C. Sur. ..... Location.

R. L. Allen's No. 2 fee, 4,290 ft. from NE line, 990 ft. from SE line, Sec. 82, Blk. 33, H.&T.C. Sur. .... Location.

R. L. Allen's No. 3 fee, 4,290 ft. from NE line, 990 ft. from NW line, Sec. 82, Blk. 33, H.&T.C. Sur. .... Location.

R. L. Allen's No. 4 fee, 4,290 ft. from NE line, 330 ft. from NW line, Sec. 82, Blk. 33, H.&T.C. Sur. ..... Location.

Eppenauer Drlg. Co.'s No. 1-A Victor, 330 ft. from SW and 335 ft. from SE of NW of N half Sec. 4, Blk. 2, W.&N.W. Sur. ..... Rigged up.

Eppenauer Drlg. Co.'s No. 2-A Allen, 330 ft. from SE and 1,650 ft. from SW, Sec. 4, Blk. 2, W.&N.W. Sur... Rig up.

Sinclair Prairie Oil Co.'s No. 1 Allen, 330 ft. from SE lines and 990 ft. from SW lines of Sec. 4, Blk. 2, W.&N.W. Sur. ..... Drlg. 3,450 ft.

Sinclair Prairie Oil Co.'s No. 2 Bell, 410 ft. from SE and 1,025 ft. from NE of Sec. 91, Blk. 1, W.&N.W. Sur. ..... Drlg. 100 ft.

Texas Pacific Coal & Oil Co.'s No. 1 Carmine, C of SE of SW of Sec. 40, Blk. 54, Twp. 1, T.&P. Sur. ..... Drlg. 300 ft.

PECOS COUNTY

California Oil Co.'s No. 1 Reid, 1,887 ft. S and 498 ft. W from the NW cor. of Sec. 61, Blk. 1, L&G.N. Sur. ..... T.D. 975 ft.

California Oil Co.'s No. 23 Yates, 215 ft. W of No. 1 Reid, Sec. 34, Blk. 194, G.C.&S.F. Sur. ..... Drlg. 610 ft.

Cardinal Oil Co.'s No. 17-E Tippett, 150 ft. from E line of W half and 730 ft. from N of No. 5-E, Sec. 40, Blk. 194, G.C.&S.F. Sur. ..... Rig up.

Culberson Bros.'s No. 18-B Monroe, 735 ft. from N line and 1,320 ft. from E line of Sec. 39, Blk. 194, G.C.&S.F.R.R. Sur. ..... Location.

Humble Oil & Refining Co.'s No. 1 White, Baker, 1,320 ft. from N and E lines of Sec. 44, Blk. Z, T.C. Sur.... Drlg. 7,575 ft.

Mid-Kansas Oil & Gas Co.'s No. 10 Smith, 150 ft. from N line and 250 ft. from E line of Sec. 31, Blk. 194, G.C.&S.F. Sur. ..... Drlg. 1,125 ft.

Mid-Kansas O. & G. Co.'s No. 18 Smith-Taylor, 1,296 ft. from S line, 1,390 ft. from W line, Sec. 33, G. C.&S.F. Sur., Blk. 194 ..... Location.

Mid-Kansas Oil & Gas Co.'s No. 24 Smith-Taylor, 350 ft. W of S half of Turner Tract No. 1, Sec. 33, Blk. 194, G.C.&S.F. Sur. ..... Road.

Mid-Kansas Oil & Gas Co.'s No. 8 Fred Turner, Jr., 363 ft. from N and 55 ft. E of N half of Tract No. 1, Fred Turner Sur. ..... Cellar.

Mid-Kansas Oil & Gas Co.'s No. 25 Smith-Taylor, 344 ft. W of SE cor. of S half of Turner Tract No. 1, Sec. 33 ..... Drlg. 265 ft.

Mid-Kansas Oil & Gas Co.'s No. 26 Smith-Taylor, 356 ft. S and 344 ft. E of SE cor. of S half of Tract No. 1 ..... Cellar.

Mid-Kansas Oil & Gas Co.'s No. 1 Turner, 1,212 ft. from N line and 250 ft. from W line of Turner Sur. No. 2.. T.D. 1,444 ft.

Mid-Kansas Oil & Gas Co.'s No. 1 Turner, 250 ft. from N line and 250 ft. from W line of Turner Sur. No. 3.. Rig up.

Mid-Kansas Oil & Gas Co.'s No. 3 Turner, 739 ft. from N and 209 ft. from W line of Turner Sur. No. 4 .... Cmtd. csg.; T.D. 1,147 ft.

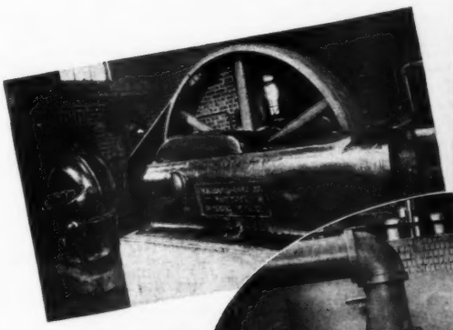
Mid-Kansas Oil & Gas Co.'s No. 3 Fred Turner, 535 ft. from S line and 500 ft. from W line of Tract No. 2.. Cellar.

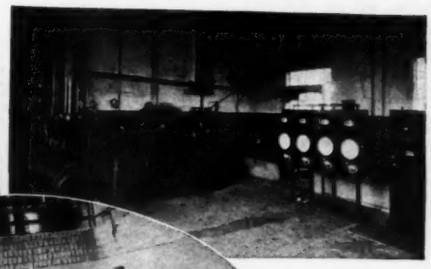
Mid-Kansas Oil & Gas Co.'s No. 6 Fred Turner, 250 ft. from W line and 625 ft. from S line of Tract No. 1.. Drlg. 1,200 ft.

Mid-Kansas Oil & Gas Co.'s No. 8 Fred Turner, 204 ft. S and 55 ft. W of the most northerly NW cor. of I. G. Yates Sur. A-3,198, but in Fred Turner, Jr., Survey, Tract No. 1 ..... Cellar.

Mid-Kansas Oil & Gas Co.'s No. 12-H Yates, 406 ft. S of N line of Sec. 32 and 344 ft. W of SE cor. of S half of Tract No. 1 ..... Location.

The Trend Is Toward *Purchased* Electric Power



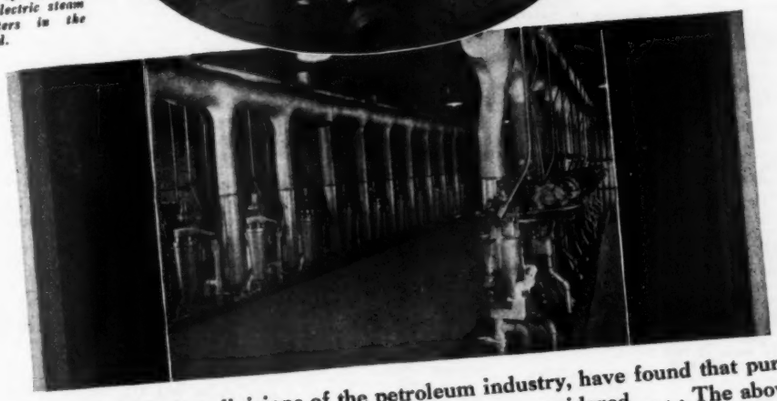


(ABOVE, LEFT)—Ingersoll-Rand air compressor, V-belt driven by 100 hp. synchronous motor.

(CENTER)—40 and 60 hp. induction motors direct connected to centrifugal water pumps.

(ABOVE, RIGHT)—Direct connected air compressor driven by 125 hp. synchronous motor. Electric steam flow meters in the foreground.

(BELOW)—Battery of twenty Sharples centrifuges individually driven by 3 hp. induction motors.



Oil refineries, like other divisions of the petroleum industry, have found that purchased electric power is more economical when all factors are considered .... The above photographs were taken in the Fort Worth refinery of the Texas Pacific Coal and Oil Co.

TEXAS ELECTRIC SERVICE COMPANY

General Offices, FORT WORTH

District Offices

FORT WORTH WICHITA FALLS BIG SPRING MIDLAND
SEYMOUR EAGLE PASS SWEETWATER EASTLAND

Mid-Kansas Oil & Gas Co.'s No. 13-H Yates, 408 ft. S of N line of Sec. 32 and 344 ft. E of SE cor. of S half of Tract No. 1 ..... Location.

Mid-Kansas Oil & Gas Co.'s No. 36-A Yates, 250 ft. N and 324 ft. W from the NW cor. of Turner Tract No. 2 in Sec. 34½, I.G. Yates Sur. ..... Drlg. 405 ft.

Mid-Kansas Oil & Gas Co.'s No. 37-A Yates, 250 ft. N and 321 ft. E of NW cor. of the Turner Tract No. 3 in Sec. 34½, I. G. Yates Sur. ..... Tested 4½ bailers of water in 10 hrs.; T.D. 1,702 ft.

Mid-Kansas Oil & Gas Co.'s No. 38-A Yates, 250 ft. E and 205 ft. S from the NE cor. of Turner Tract No. 3 in Sec. 34½, I. G. Yates Sur. ..... Location.

Mid-Kansas Oil & Gas Co.'s No. 39-A Yates, 250 ft. N and 250 ft. W of the NW cor. of Turner Tract No. 4 in Sec. 34½, I. G. Yates Sur. ..... Cellar.

Mid-Kansas Oil & Gas Co.'s No. 40-A Yates, 344 ft. from E line and 395 ft. from N of SE cor. of S half of Turner Tract No. 1 ..... Drlg. 290 ft.

Mid-Kansas Oil & Gas Co.'s No. 42-A Yates, 56 ft. E and 204 ft. S of the extreme NE cor. of lease, Sec. 34½, Blk. 194, G.C.&S.F. Sur. ..... Drlg. 675 ft.

Mid-Kansas Oil & Gas Co.'s No. 41 I. G. Yates, 480 ft. W and 204 ft. S of the most northerly NE cor. of I. G. Yates Sur. A-3,195 ..... Rigging up lubricator; T.D. 1,229 ft.

Mid-Kansas Oil & Gas Co.'s No. 42 I. G. Yates, 204 ft. S and 55 ft. E of the most northerly NW cor. of I. G. Yates Sur. A-3,195 ..... Drlg. 675 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 14-C University, 725 ft. from S line and 2,720 ft. from E line of Sec. 25, Blk. 9, University Land Sur. ..... Drlg. 7,626 ft.

Big Lake Oil Co.'s No. 15-C University, 660 ft. from E line and 660 ft. from S line of Sec. 25, Blk. 9, University Land Sur. ..... Cellar.

Group Oil Co.'s No. 10-B University, 1,900 ft. from N and 1,895 ft. from E line. Sec. 36, Blk. 9 ..... **Cellar.**

E. P. Kirschner and White's No. 1 W. A. White and McIntosh, 720 ft. from E and 800 ft. from N of Sec. 1,223, E.L.R.R. Sur. ..... Moving in standard rig.

Snyder et al's No. 1 Hughes, 1,320 ft. from N and W lines of Sec. 14, G.C.&S.F. Sur. ..... Drlg. 2,806 ft.

RUNNELS COUNTY

Agnew & Sons' No. 2 Fowler, 1,165 ft. from S and 150 ft. from W of NE cor. of Blk. 23, N. Travis Sur. ..... Rig up.

Anderson et al's No. 1 W. F. James, 330 ft. from N and W lines of Subdiv. No. 20, Norvell Travis Sur. ..... Spudded and S.D.

Golden Pet. Corp.'s No. 3 McMillan, 780 ft. from W and 330 ft. from N of Subdiv. No. 22, N. Travis Sur. No. 533 ..... Location.

W. S. Sawyer et al's No. 1 Giesecke, 1,211 ft. from N and 4,606 ft. from E lines of survey, Blk. 131, James Hughes Sur. ..... Prepare to spud.

D. D. Thomas et al's No. 1 T. B. Wade, 2,597 ft. from N and 2,140 ft. from E line of Subdiv. No. 10, Norvel Travis Sur. ..... Drlg. 805 ft.

Wahlenmaier Pet. Co.'s No. 1 T. C. Hall, 330 ft. out of SW cor. E.T.R.R. Sur. No. 149 ..... Drlg. 1,910 ft.

F. D. Williams' No. 1 J. L. Elkins, 2,235 ft. from E and 1,300 ft. N of SW cor. of Blk. 12, but in Blk. 13, N. Travis Sur. No. 533 ..... Rig up.

UPTON COUNTY

Gulf Prod. Co.'s No. 103 McElroy, 1,980 ft. from S and 460 ft. from W. Sec. 197 Blk. F, C.C.S.D.&R.G.N.G. ..... Coring 8,800 ft.

Texas Pacific Coal & Oil Co.'s No. 1-C J. H. Sherk, 1,650 ft. from S and 330 ft. from W, Sec. 1, Blk. 3-B, M.K.&T. Sur. ..... Location.

Williams & Williams Drlg. Co.'s No. 1 Robbins, 1,600 ft. from S and 1,900 ft. from E, Sec. 4, G.C.&S.F. Sur. ..... Spudded and S.D. to rig up standard tools.

VAL VERDE COUNTY

South-Western Exploration Co.'s No. 1 E. K. Fawcett, 2,310 ft. from S and 2,310 ft. from E, Sec. 14, Blk. L, G.C.&S.F. Sur. ..... Moving in material.

WARD COUNTY

Atlantic Oil & Prod. Co.'s No. 10 Johnson, 990 ft. from NE line and 330 ft. from NW line of Sec. 9, Blk. 34, H.&T.C. Sur. ..... Derrick.

Atlantic Oil & Prod. Co.'s No. 12 Johnson, 990 ft. from SE line and 990 ft. from NE line of Sec. 9, Blk. 34, H.&T.C. Sur. ..... Prepare to deepen; T.D. 2,355 ft.

Atlantic Oil & Prod. Co.'s No. 13 Johnson, 330 ft. from NE line and 330 ft. from SE line of Sec. 9, Blk. 34, H.&T.C. Sur. ..... **Cellar.**

Atlantic Oil & Prod. Co.'s No. 15 Johnson, 330 ft. from SE line and 1,650 ft. from NE line of Sec. 9, Blk. 34, H.&T.C. Sur. ..... Location.

California Oil Co.'s No. 3 York, 1,650 ft. from NW and 330 ft. from SW, Sec. 10, Blk. 34, H.&T.C. Sur. ..... Drlg. 1,220 ft.

California Oil Co.'s No. 5 York, 1,650 ft. from S and 990 ft. from SW, Sec. 10, Blk. 34, H.&T.C. Sur. ..... Location.

S. Caprito et al's No. 2 Pure-Bennett, 990 ft. from SE and 330 ft. from NE lines of Sec. 16, Blk. 34, H.&T.C. Sur. ..... Rig up.

Eastland Oil Co.'s No. 2 Johnson, 1,980 ft. from SE line and 1,980 ft. from SW line of Sec. 14, Blk. 34, H.&T.C. Sur. ..... Waiting on cmt. to set; T.D. 2,554 ft.

Gulf Prod. Co.'s No. 22 Hutchings, 990 ft. from N line and 330 ft. from W line of Sec. 4, Blk. F, G.&M.M. B.&A. Sur. ..... T.P. 2,679-2,733 ft.; flowed 407 bbls. to tanks; T.D. 2,756 ft.

Gulf Prod. Co.'s No. 24 Hutchings, 1,549 ft. from N line and 440 ft. from W line of Sec. 7, Blk. O, G.&M.M. B.&A. Sur. ..... Reaming; T.D. 2,715 ft.

Gulf Prod. Co.'s No. 40 O'Brien, 1,650 ft. from N line and 330 ft. from E line of Sec. 17, Blk. F, G.&M.M. B.&A. Sur. ..... Drlg. 2,515 ft.

Gulf Prod. Co.'s No. 41 O'Brien, 1,650 ft. from N and 990 ft. from E lines of Sec. 17, Blk. F, G.M.M.B.&A. Sur. ..... Drlg. 320 ft.

Gulf Prod. Co.'s No. 42 O'Brien, 2,310 ft. from N and 330 ft. from S. Sec. 17, Blk. F, G.M.M.B.&A. Sur. ..... Moving in.

Humble Oil & Ref. Co.'s No. 1 University, 990 ft. from N line and 440 ft. from E line of Sec. 2, Blk. 16, University Sur. ..... Flowed 50 bbls. in 14 hrs.; T.D. 2,731 ft.

Jack Leidecker's No. 2 Archenhold, 2,310 ft. from NE and 2,310 ft. from SE, Sec. 23, Blk. 5, H.&T.C. Sur. ..... Rig up.

Simms Oil Co.'s No. 1 W. D. Johnson, 330 ft. from the NE and SE lines of Sec. 25, H.&T.C. Sur., Blk. 34. ..... Cellar.

Sinclair Prairie Oil Co.'s No. 4 Archenhold, 2,310 ft. from NW line and 2,310 ft. from SW line of Sec. 23, Blk. 5, H.&T.C. Sur. ..... Drlg. 2,795 ft.

W. B. Smith's No. 1 Wallis, 1,836 ft. from NE line and 167 ft. from SE line of Sec. 19, Blk. 34, H.&T.C. Sur. ..... **Location.**

Sturm-Simms Oil Co.'s No. 1 Jones, 2,310 ft. from NE and 330 ft. from SE, Sec. 25, Blk. B-29, P.S.L. Sur. ..... Cleaning out after shot; T.D. 3,081 ft.

Tex-Mex Pet. Corp. et al's No. 2 Llano-Sloan, 990 ft. from NW and 2,310 ft. from SW, Sec. 16, Blk. 5, H.&T.C. Sur. ..... Rigging up.

Tex-Mex Pet. Corp.'s No. 2-B Sheil-Sloan, 2,310 ft. from NE and 990 ft. from NW, Sec. 16, Blk. 5, H.&T.C. Sur. ..... Cellar.

Tex-Mex Pet. Corp. et al's No. 2 Cal-Archenhold, 990 ft. from NE and 330 ft. from SE, Sec. 23, Blk. 5, H.&T.C. Sur. ..... Location.

S. A. Thompson's No. 5-A Johnson, 2,310 ft. from NW and 1,650 ft. from SW cor. of Sec. 9, Blk. 34, H.&T.C. Sur. ..... Drlg. 1,350 ft.

WINKLER COUNTY

Harry Adams' No. 2 Scarborough (old well being drilled deeper), 105 ft. from N and 1,000 ft. from E, Sec. 1, Blk. 77, P.S.L. Sur. ..... Moving in.

Magnolia Pet. Co.'s No. 4 Scarborough, 1,650 ft. from N line and 330 ft. from W line of Sec. 1, Blk. 77, P.S.L. Sur. ..... Fishing; T.D. 2,650 ft.

Magnolia Petroleum Co.'s No. 2 Walton, 330 ft. from N and 330 ft. from E, Sec. 19, Blk. 74, P.S.L. Sur. ..... Drlg. 820 ft.

McCurdy & Easter's No. 1 Scarborough, 1,650 ft. from W and 2,310 ft. from S, Sec. 1, Blk. 77, P.S.L. Sur. ..... Rigging up.

Sid Richardson's No. 6-A Scarborough, 330 ft. from N and 990 ft. from W, Sec. 1, Blk. 77, P.S.L. Sur. ..... Drlg. 1,255 ft.

Sid Richardson's No. 5-A Scarborough, 330 ft. from W and 190 ft. from S, Sec. 1, Blk. 22-C, P.S.L. Sur. ..... Moving in machine.

Sid Richardson's No. 2-B Scarborough, 2,310 ft. from E line and 990 ft. from S line of Sec. 18, Blk. 74, P.S.L. Sur. ..... Derrick.

Sinclair Prairie Oil Co.'s No. 3 W. F. Scarborough, 1,650 ft. from E line and 990 ft. from N line of Sec. 1, Blk. 17, P.S.L. Sur. ..... Fishing 2,915 ft.

Sinclair Prairie Oil Co.'s No. 1-C Scarborough, 2,310 ft. from W and 102½ ft. S of SE cor., Sec. 1, Blk. 22-C, P.S.L. Sur. ..... Bldg. derrick.

Wildcat Operations in Texas Panhandle

Week Ending January 22

CARSON COUNTY

Company, well, farm name, section and block— Remarks:

American Ref. Co.'s No. 11 Burnett, 745 ft. from E line, 802 ft. from S line, Sec. 115, Blk. 5, I.&G.N. Sur. ..... Location.

American Ref. Co.'s No. 12 Burnett, 1,145 ft. from E line, 802 ft. from S line, Sec. 115, Blk. 5, I.&G.N. Sur. ..... Location.

Huber Pet. Co.'s No. 1 Burnett, C SW Sec. 123, Blk. 5, I.&G.N. Sur. ..... Fishing 745 ft.

Skelly Oil Co.'s No. 25 (West) Schaffer, 1,320 ft. from S line, 2,200 ft. from W line of Sec. 87, Blk. 4, I.&G.N. Sur. ..... Set csg. 2,271 ft.

United Crude Oil Corp.'s No. 3 Cooper, 330 ft. from N line, 310 ft. from E line, SE Sec. 5, Blk. 9, I.&G.N. Sur. ..... Rig up.

DALLAM COUNTY

Eben Warner's No. 1 Jarboe, 1,520 ft. from S line, 415 ft. from W line, Sec. 2, Blk. 2, B.&B. Sur. ..... Drlg. 1,400 ft.

GRAY COUNTY

Anderson & Bean's No. 2 J. C. Vollmert, 330 ft. from S line, 330 ft. from E line, SW Sec. 140, I.&G.N. Sur., Blk. 3 ..... **Cellar.**

British American Oil Co.'s No. 5 J. L. Phillips, 1,320 ft. S, 330 ft. W of the NE cor. W½ E½ Sec. 127, Blk. 4, I.&G.N. Sur. ..... Location.

Cambrian Oil Co.'s No. 2 L. H. Webb, 990 ft. from N line, 330 ft. from E line of E½ NE Sec. 62, Blk. 25, H.&G.N. Sur. ..... Rig up.

Dixon Creek Oil Co.'s No. 1 D. W. Cary, 2,600 ft. from N line, 1,157 ft. from W line of Sec. 114, Blk. 3, I.&G.N. Sur. ..... Rig.

Dixon Creek Oil Co.'s No. 2 M. E. Jackson, 1,320 ft. S, 440 ft. W of the NE cor. SE Sec. 138, I.&G.N. Sur., Blk. 3 ..... Location.

Dixon Creek O. & G. Co.'s No. 2 M. E. Jackson, 1,320 ft. N, 440 ft. from E lines of SE Sec. 138, Blk. 3, I.&G.N. Sur. ..... Rig up.

Dyke Oil Co.'s No. 1 Saunders, NW cor. S½ NW Sec. 3, Blk. 1, B.S.&F. Sur. ..... U.R. csg.; T.D. 1,975 ft.

Gulf Prod. Co.'s No. 5 Ellis Cockrell, 330 ft. from N and E lines, S½ Sec. 2, Blk. M-21, T.C.R.R. Sur. ..... Location.

Hendron et al's No. 1 Hunseiby, 330 ft. S and E, SW SW Sec. 11, Blk. A-9, H.&G.N. Sur. ..... Rig.

Hoffman Oil Co.'s No. 3 Finley, 330 ft. from E of NW cor. Sec. 2, Blk. 1, H.&G.N. Sur., but located in Sec. 17, Blk. 8, E. E. Cheney Sur. ..... Rig up.

Magnolia Pet. Co.'s No. 1 Haggard, 330 ft. from S and W lines of NW Sec. 113, Blk. 3, I.&G.N. Sur. ..... Location.

Mazda-Shell's No. 4 Coombs-Worley, 990 ft. from N line, 330 ft. from E line, Sec. 35, Blk. 3, I.&G.N. Sur. .. Rig.

Mid-Kansas O. & G. Co.'s No. 4 Webb, 330 ft. from S and W lines of NE Sec. 61, Blk. 25, H.&G.N. Sur. .. T.D. 2,501 ft.; shot with 190 qts. 2,418-65 ft.; 1,200 ft. of oil in hole; to test.

Phillips Pet. Co.'s No. 8 J. E. Wright, 330 ft. S, 992 ft. E of NW cor. N½ SW Sec. 13, I.&G.N.R.R. Sur., Blk. 3 ..... Location.

Phillips Pet. Co.'s No. 5 Combs-Worley, 992 ft. N, 330 ft. E of the SW cor. W½ NE Sec. 36, I.&G.N. Sur., Blk. 3 ..... Location.

Phillips Pet. Co.'s No. 1 Faulkner, 330 ft. from N and W lines of SW Sec. 58, Blk. B-2, I.&G.N. Sur. ..... Building rig.

Skelly Oil Co.'s No. 1-B L. H. Webb, 745 ft. from E line, 540 ft. from S line of NE Sec. 43, H.&G.N. Sur., Blk. 25 ..... Rig up.

Skelly Oil Co.'s No. 7 Vicars, 1,320 ft. from N line, 330 ft. from W line of E¼ NW Sec. 127, Blk. 3, I.&G.N. Sur. ..... Pay 3,220-84 ft.; shot with 170 qts. 3,202-65 ft.; swbd. 300 bbls. in. 18 hrs.; T.D. 3,284 ft.

Skelly Oil Co.'s No. 9 Vicars, 330 ft. from S. 1,265 ft. from E lines of SW Sec. 127, Blk. 3, I.&G.N. Sur. .. Building rig.

Skelly Oil Co.'s No. 4 Webb, 330 ft. from N line, 330 ft. from E line, Sec. 16, Blk. 25, H.&G.N. Sur. ..... Drlg. 1,840 ft.

Skelly Oil Co.'s No. 5-A Webb, 330 ft. from N, 990 ft. from W lines of SE Sec. 61, Blk. 25, H.&G.N. Sur. .. Moving in rig.

Texas Co.'s No. 11 Cook-Faulkner, 1,310 ft. from W line, 1,148 ft. from N line of W 172 acres of Sec. 29, Blk. 2-B, H.&G.N. Sur. ..... C.O. 3,020 ft.

F. H. Yealy's No. 2 Crank, 960 ft. from N and E lines of N 160 acres of W 400 acres of Sec. 163, Blk. 3, I.&G.N.R.R. Sur. ..... Fishing 3,306 ft.

HUTCHINSON COUNTY

J. R. Phillips et al's No. 1 Tom Lewis, 330 ft. S and W, of the NE cor. NE Sec. 7, B.S.&F. Sur., Blk. M-23. Location.

Phillips Pet. Co.'s No. 1 Ludlum, 250 ft. from N and W lines of a square 50-ac. tract in NE cor. Sec. 3, Blk. M-21, T.C.R.R. Sur. ..... Cellar.

Harry Stekoll Oil Prod. Co.'s No. 2 F. Plemons Whittenburg, 330 ft. W, 1,650 ft. from N lines of 160 acres of the W½ Sec. 18, Blk. 47, H.&T.C. Sur. .... Location.

Stanolind O. & G. Co.'s No. 2-C Ware, 330 ft. from S line, 330 ft. from E line, Sec. 20, Blk. M-21, T.C. R.R. Sur. ..... Drlg. 2,425 ft.

WHEELER COUNTY

H. R. Anderson's No. 1 R. L. Harlan, 330 ft. from N line, 330 ft. from E line of NW Sec. 49, H.&G.N. Sur., Blk. 24 ..... Rig up.

Humble O. & R. Co.'s No. 1 J. P. Koons, 330 ft. from S and E lines of W½ NE Sec. 43, Blk. 24, H.&G. N. Sur. ..... Location.

Myers & Kennedy's No. 1 Harvey, 660 ft. from S and E lines of NW Sec. 67, Blk. 13, H.&G.N. Sur. ..... Rig up.

R. R. Osborne's No. 1-A Admire, 330 ft. from N, 1,520 ft. from E lines of NE of Blk. 13, H.&G.N. Sur. .. Old T.D. 2,153 ft.

Parkhurst & Skrivin's No. 1 D'Spain, 330 ft. from N and E lines of E½ SW Sec. 52, Blk. 24, H.&T.C. Sur. ..... Location.

Kansas Production Increases as Producers Take Underage; Reno County in the Limelight

By W. A. SPINNEY

The development of oil reserves in Reno County, Kansas, shows there are a dozen drilling tests and locations staked. Leasing has been active in the western part of the county and wildcatting is in progress. Four wells are nearing the pay horizon.

The wells are Study, Lloyd & Frost's No. 3 Haury, NE cor. NW Section 1-23-4w, in the Haury Pool. This well made a number of natural flows at the rate of 62 bbls. an hour before the tools were run into the hole to drill deeper, at a total depth of 3,338 feet. Plans are to make an acid test and then run tubing before taking a production test. The well is producing from the chat and it is believed it will make one of the largest wells yet completed in the county.

Engler, Rust and others' No. 1 Balzer, SE cor. NW Section 36-22-3w, north of the Haury Pool, was shut down at 1,280 feet. It is planned to resume operations in a short time and complete this test.

Texas Co.'s No. 1 Ragland Kingsley, C NW NW Section 36-23-4w, in the southern part of the Burrton area, Reno County, has landed pipe at 3,257 feet and was rigging up standard tools.

Sinclair Prairie Oil Co.'s No. 1 Base, C SW NW Section 36-23-4w, in the southern part of the Burrton Pool, had the top of the chat at 3,297 feet. It was expected to resume drilling with standard tools shortly.

In the Yoder district of Reno County, Roth & Faurot's No. 1 Yoder, C NW NW Section 15-24-5w, was drilling at 3,715 feet. This is a wildcat test about 7 miles southeast of Hutchinson.

Dustin and others, in No. 1 Evans, C NE NW Section 25-24-8w, northeast of Arlington, were shut down temporarily at 1,423 feet, but expect to be making hole again soon.

Lario Oil & Gas Co.'s No. 1 Russell, NE cor. SW Section 29-23-7w, was setting casing at 2,752 feet. It is located about 12 miles southwest of Hutchinson.

Frank Hollow and Rose Spring Drilling Co.'s No. 1 Neufeldt, NW cor. NW Section 12-23-4w, was drilling at 300 feet. It is about a half mile southwest of the Haury Field.

Sinclair Prairie Oil Co.'s No. 1 Base, C SW SE Section 26-23-4w, was rigging to drill deeper, in the Burrton Field. This well was completed about a year ago, making around 25 bbls. of oil and 20,000,000 feet of gas a day from the chat formation at 3,320 feet. The company plans to drill to the Wilcox sand.

Estimated daily average production of important pools in Kansas for the week ending January 20 and for the preceding week was as follows:

Field or Pool—	Jan. 20	Jan. 13
Hollow	11,500	9,175
Ritz-Canton	13,130	13,715
Voshell	6,745	6,515
Sedgwick County	8,545	5,960
Nikkell	4,495	3,620
Ellsworth County	4,070	3,820
Barton County	746	710
Rice County	6,830	6,421
Reno County	2,138	1,913
Ellis County	744	426
Kingman County	0	1,079
Stafford County	866	566
Russell County	5,445	5,010
Greenwood County	11,000	11,500
Butler County	18,000	18,000
Other pools	20,391	19,800
Total	114,645	108,230

Olson Oil Co.'s No. 2 Roberts, C SW NW Section 25-23-4w, Burrton Field, was spudding. It is a center location on a 40-acre tract south of the same company's No. 1 Roberts, a producer.

The derrick is up for Olson Oil Co.'s No. 1 Vogt, C SW NE Section 26-23-4w, in the Burrton Pool.

Study, Lloyd and Frost's No. 1 Bartles, SE cor. SW Section 36-23-4w, on the north edge of the Haury Pool, are preparing to start drilling operations.

Manning & Terry's No. 1 Dyck, in the SW Section 36-22-4w, Haury Pool, is making around 1,600 bbls. and has added importance to the area making future extensions to the north and northwest look promising.

Rosenthal and others' No. 1 Neufeldt, NW cor. Section 12-23-4w, was drilling at 270 feet.

Revival in Southern Butler

Increased oil activity near Douglass in southern Butler County where considerable amount of leasing has been underway the last few weeks is indicated by new tests. The successful completion of wells in the Kansas City-Lansing lime after being treated with acid has been responsible for the upward increase in operations.

Bradley and others' No. 1 McLaughlin, NW cor. Section 20-29-4, a half mile west of Douglass, was drilling at 1,000 feet. William Donley and others have a rig up for their No. 1 Morrison, 2 miles north and a mile east of Douglass, in the SE cor. NE SE Section 4-29-4.

The National Refining Co. was drilling below 2,200 feet in its No. 1 Ow, SE Section 20-26-7. The tools were still in the Kansas City-Lansing formation at that depth, which was topped at 2,092 feet. No showing of oil has appeared in this horizon. The company plans to drill the test to the Mississippi lime, expected at approximately 2,700 feet.

Skelly Increasing Facilities

Skelly Oil Co. has purchased a 10-acre tract in the SW cor. Section 34-23-3w, southeast of Burrton, Reno County, on which a pumping station will be erected. This station will serve the new pipe line that the company has under construction from Cunningham to Burrton. It will pump the crude oil to the refinery at Eldorado.

The Cunningham-Burrton pipe line now under construction crosses eastern Reno County and northern Kingman County. At Burrton it connects with a pipe line that carries crude oil from McPherson County to Eldorado, which was built about three years ago.

Rice County

Slick, Pryor & Lockhart's No. 1 Schurr, NE cor. SW Section 21-20-10w, Rice County, an old well drilled deeper, was abandoned at 3,360 feet after finding water at 3,314 feet.

Gypsy Oil Co.'s No. 1 Christopher, NE cor. Section 6-20-9w, was completed for 835 bbls. of oil a day, from the Siliceous lime at 3,229-57 feet. It was treated with 1,000 gallons of acid.

Producers & Refiners Corp.'s No. 3 Thompson, NW cor. NE NW Section 21-20-10w, flowed 37 bbls. of oil in 24 hours from the pay at 3,112-23 feet.

Werbros Development Co. and others' No. 2 Masemore, SE cor. SW NW Section 18-20-9w, was spudding. Atlantic Oil Producing Co.'s No. 1 Ott, C SW SW Section 11-19-10w, was drilling at 450 feet. Slick, Pryor & Lockhart's No. 1 Schmidt, C NW NW Section 15-18-10w, was drilling at 400 feet.

Harvey County

Shell Petroleum Corp.'s No. 3 Schmidt, CWL SW Section 17-22-3w, was completed for 432 bbls. of oil in 24 hours from the chat at 3,165-3,208 feet. It was treated with 1,000 gallons of acid.

Frost-Study and others' No. 5 Martens, NW cor. SE SE Section 19-22-3w, was a rig abandoned.

Shell Petroleum Corp.'s No. 3 Voth, NE cor. SE NW Section 4-22-3w, was drilling at 650 feet. Sinclair Prairie Oil Co. started drilling at its No. 2 Schroeder-"B," SW cor. NW NE Section 4-22-3w. Magnolia Petroleum Co.'s No. 5 Schmidt, SE cor. NW NE Section 30-22-3w, is a location.

Mabee Drilling Co. and Shell Petroleum Corp.'s No. 3 Martens, C NW NE SE Section 19-22-3w, swabbed 340 bbls. of oil in 10 hours from the Hunton lime at 3,460-63 feet. It will be treated with 1,000 gallons of acid.

McPherson County

Sherman and others abandoned their No. 1 Krehbiel, NW cor. SE Section 27-21-3w, McPherson County, at a total depth of 1,340 feet.

Mabee Drilling Co. and Shell Petroleum Corp.'s No. 4 Friesen, SE cor. SW Section 33-21-3w, was completed for a potential of 1,476 bbls. a day from the Hunton lime at 3,476-95 feet. Same companies' No. 4 Nikkell-"B," Section 33-21-3w, was completed with a potential of 1,780 bbls. a day from Hunton lime at 3,468-88 feet. It was treated with 1,000 gallons of acid. Same companies' No. 5 Nikkell was drilling at 325 feet.

Youker and others' No. 1 Gratton, SE cor. SW SW Section 24-19-2w, an old well drilled deeper to the Viola lime at 3,396-3,422 feet, made 429 bbls. of oil in 24 hours. Same operators' No. 7 Eaton, NW cor. NE NE Section 26-19-2w, was completed for 463 bbls. of oil after being treated with 3,000 gallons of acid in the Viola lime at 3,395-3,423 feet.

T. C. Johnson and Gypsy Oil Co.'s No. 2 McGill, SW cor. SE NW Section 20-19-1w, is a location. Roth and Faurot's No. 1 Carlson, NE cor. NW NE Section 24-19-3w, was spudding. Stanolind Oil & Gas Co. and others' No. 5 Lovett, SE cor. SW SW Section 13-19-2w, was preparing to spud. Lario Oil & Gas Co.'s No. 3 Watters, SW cor. SE SW Section 24-19-2w, is an old well drilling deeper from 2,978 feet in the chat. It will be drilled to the Viola lime. Mid-Kansas Oil & Gas Co.'s No. 3 Bridgens, SW cor. NE SW Section 2-20-3w, is a location.

Greenwood and Woodson Counties

Miller and Gaines' No. 1 Elliott, C N half NE NW Section 18-26-9, Greenwood

(Continued on Page 119)

Wildcat Operations in Kansas

Week Ending January 20
(Descriptions are East unless marked otherwise)

Company, farm and location—	Remarks:
BARTON COUNTY	
Gypsy Oil Co.'s No. 1 Soderstrom, SE NE NW Sec. 21-17-13w	Drlg. 3,240 ft.
Danciger et al's No. 1 Roesler, SW NE Sec. 11-18-11w (O.W.D.D.)	Abd. 3,401-07 ft.; wtr.
Helmerich & Payne's No. 1 Everleigh, C SW SE Sec. 13-18-13w	Siliceous 3,363-3,407 ft.; wtr.; abd.
Skelton et al's No. 1 Ott, C SE SE Sec. 16-19-14w	Acidized; 2,600 ft. of fluid in hole; S.D.
BUTLER COUNTY	
DeGenther et al's No. 1 Marnane, NW cor. Sec. 29-26-3	Cellar.
COWLEY COUNTY	
Yarnell et al's No. 1-A Speer, SE NE NE Sec. 31-33-6e	U.R. 6-in. csg.; T.D. 2,210 ft.
Van Meter et al's No. 1 Moore, NE cor. Sec. 5-35-4	Rig.
EDWARDS COUNTY	
Atlantic Oil Prod. Co.'s No. 1 Bradbridge, C SE NW Sec. 1-24-16w	In granite 4,478-4,500 ft.; to P.B.
ELLIS COUNTY	
Ashby et al's No. 1 Polycyn, NE SE Sec. 12-13-16w (O.W.D.D.)	To acidize 3,118-22 ft.; C.O.
FINNEY COUNTY	
National Ref. Co. et al's No. 1 Smith, C SE SW Sec. 2-23-29w	T.D. 3,323 ft.; fishing.
GREENWOOD COUNTY	
DeGenther et al's No. 1 Garrison, NW NE NW Sec. 20-25-11	Drlg. 350 ft.
Miller & Gaines' No. 1 Elliott, C N½ NE NW Sec. 18-26-9	Abd. 50 ft.
HARVEY COUNTY	
Hartman et al's No. 1 Jones, C NW SW Sec. 19-25-1w	T.D. 2,940 ft.; set 6-in. csg. at 2,904 ft.; to acidize.
McPHERSON COUNTY	
Phillips Pet. Co.'s No. 1 Finsley, C SW SE Sec. 5-2-1w	Rig.
Dieter et al's No. 1 Carlson, SE cor. Sec. 4-19-3w	S.D. 3,400 ft.
Jim Madison's No. 1 Boesker, SE NW Sec. 29-20-1w	Spudded.
Harris & Haun's No. 1 Rupp, SW cor. Sec. 12-21-2w	Drlg. 2,513 ft.
Wakefield & Hawkins' No. 1 Smith, SW SE Sec. 17-17-1w	Rigging up.
PHILLIPS COUNTY	
Ashby et al's No. 1 Unknown, C SE Sec. 24-5-18w	Spudding.
RENO COUNTY	
Roth & Faurot's No. 1 Yoder, C NW NW Sec. 15-24-5w	Drlg. 3,715 ft.
RICE COUNTY	
Slick, Pryor & Lockhart's No. 1 Schmidt, C NW NW Sec. 15-18-10w	Drlg. 400 ft.
El Dorado Ref. Co.'s No. 1 Wernet, SW NE Sec. 12-20-6w	Drlg. 2,727 ft.
Lario O. & G. Co. and Elwell's No. 1 Russell, NE SW Sec. 29-23-7w	Drlg. 2,752 ft.
Geo. Dickey et al's No. 1 Hunter, NE cor. Sec. 35-19-7w	Drlg. 335 ft.
Langston et al's No. 1 Markle, NE SW Sec. 1-20-9w	T.D. 1,057 ft.
ROOKS COUNTY	
Phillips Pet. Co.'s No. 1 Dopitz, C SW SW Sec. 31-8-17w	Rig.
RUSSELL COUNTY	
Western Exploration Co.'s No. 1 Andrea, SW cor. Sec. 30-15-12w	Drlg. 355 ft.
Tom Palmer's No. 1 Steinle, NW SW Sec. 32-13-14w	Drlg. 2,605 ft.
SEDGWICK COUNTY	
Cameron et al's No. 1-A Funk, SW SE NW Sec. 6-26-3e	Drlg. 2,670 ft.
Wentz et al's No. 1 Stockamr, SW NE Sec. 31-26-2w	Drlg. 3,730 ft.
STAFFORD COUNTY	
Atlantic Oil Prod. Co.'s No. 1 Willinger, C NE NE Sec. 18-22-11w	Drlg. 3,476 ft.
Vickers Pet. Co. and Phillips Pet. Co.'s No. 1 Cravens, SW NE Sec. 15-25-11w	Drlg. 1,820 ft.
SUMNER COUNTY	
Wentz and Continental Oil Co.'s No. 1 Kerns, SE cor. NE Sec. 6-34-1w	Location.
WOODSON COUNTY	
Sheedy et al's No. 1 Warner, NE SW SW Sec. 21-25-14	Drlg. 1,000 ft.
Wolf Creek Oil Co.'s No. 1 Larber, NW cor. Sec. 35-25-14	Rigging up.
Lewis Bros.' No. 1 Riggs, SW cor. Sec. 19-26-14	Set pipe at 765 ft.; S.D.

Recent Big Wells in Osage County Revive Major Company Interest in West Side of the Field

By W. A. SPINNEY

The first large purchase of acreage in Oklahoma this year was made by the Carter Oil Co. in Osage County. The company acquired operating control of approximately nine sections of undeveloped leases, about 1,440 acres, located favorably on structure. It is reported the Carter Oil Co. paid approximately $400,000 in cash for control.

The acreage control was purchased from the Norbla Oil Co., of which Charles B. Peters, Jr., is president, and a few of the leases were secured from Bay Oil Corp., of which A. G. Oliphant is president.

The well that brought about this transaction was Mead Brothers and Sinclair Prairie Oil Co.'s No. 1, in NE cor. SW Section 10-25-6, located several miles south of the Burbank Pool, and north of the Fairfax Pool. They had Bartlesville sand from 2,807-45 feet, where the well made around 850 bbls. of oil a day after shot of explosive of 41 gravity oil. They have announced locations for No. 2 in the NW cor. NE SW and No. 3 in SE cor. NE SW Section 10-25-6.

Oklahoma Production

Estimated daily average production in Oklahoma in the week ending January 20, and in the preceding week was as follows:

Field or pool—	Jan. 20	Jan. 13
Allen	8,790	8,775
Bristow-Slick	10,250	10,250
Cushing-Shamrock	12,250	12,250
Healdton	9,200	9,500
Hewitt	4,850	5,000
Burbank	10,000	10,000
Balance of Osage	21,000	21,000
Lucien	5,930	5,925
Bowlegs	12,180	11,400
Carr City	6,575	6,400
Earlsboro	10,160	9,860
East Earlsboro	13,950	13,850
South Earlsboro	1,435	1,370
Little River	16,815	15,890
East Little River	850	755
Seminole	12,125	11,100
East Little River	1,350	1,345
Searight	2,375	2,410
Maud	1,450	1,510
Mission	5,165	4,375
St. Louis-Pearson	23,620	26,150
Cromwell	4,750	4,750
Oklahoma City	217,530	231,700
Tatums-Tussey	8,625	8,050
Sholem-Alechem	4,600	4,850
Duncan district	4,500	5,000
Tonkawa-Garner-Thomas	6,750	6,750
Holdenville-Fish	6,575	6,215
Wewoka	4,500	4,500
Other fields	86,590	87,315
Total	534,740	548,225

The Carter Oil Co. and Norbla Oil Co.'s No. 1, in the SW cor. NE Section 15-25-6, is a new location announced after the sale. The Carter Oil Co., Bay Oil Corp. and Norbla Oil Co. have staked a location for No. 1 in the NW cor. SE Section 10-25-6, the direct offset east of the Mead Brothers and Sinclair Prairie Oil Co.'s producing well. This 160-acre tract, in the SE of Section 10-25-6, was sold for $7,500 at the late 1933 Osage sale.

The Mid-Co Oil Corp. is drilling a test well at its No. 1, in the SE cor. NW Section 10-25-6, the north offset.

The result of this increased activity in the vicinity of this new well and in the south end of the Burbank Field indicates that an early sale of the unleased tracts in the area will be announced shortly. It is expected that some of these tracts may bring fancy bonuses at such an auction.

Will Test in Garvin County

Two interesting wildcat locations have been made following a fast lease play near Paoli in Garvin County. Anderson & Kerr and others' No. 1 Rodke, NW cor. NE NW Section 21-4-1w, is one of the new locations. The other location is Phillips Petroleum Co.'s No. 1 Dennis, SE cor. NE Section 9-3-1e, north of Pauls Valley. Both of these locations are on structures that have been indicated by geophysical machines.

Phillips Petroleum Co. has a block of acreage near Norman, in Cleveland County, on which a test well is expected to be drilled within the next 60 days on a tentative location in the N half NW Section 11-9-2w.

There are a number of lease blocks along this trend from Oklahoma City Field south to Pauls Valley, and all are reported to be located on seismograph structures. Considerable trading in leases and royalty has been in progress along this trend the last few months.

Water in Important Wildcat

Another promising wildcat test in Payne County found water in the Misener sand and it was drilling deeper. The Mid-Continent Petroleum Corp.'s No. 1 Swank, SE cor. NE NE Section 19-19-2, near Stillwater, in Payne County, found water after bailing to a total depth of 4,552 feet. A showing of oil was found in the Misener sand topped at 4,545 feet, and set 8-inch casing at 4,547 feet. It was drilled deeper at 4,555 feet, where it was tested again.

New Work in Tatums-Tussey

New work was getting under way in the Tatums-Tussey area of Carter County, in southern Oklahoma. Carter Oil Co.'s No. 1 Epperly, SE cor. SW NE Section 4-1s-3w, is a new operation, a south offset to No. 1 M. Riddle, a producer. The same company's No. 3 Laura Lynn, NW cor. NE SE Section 31-1s-2w, was preparing to spud. It was located in the southeast extension area of Tatums. Same company's No. 1 Krieger, SW cor. NW SE Section 8-2s-2w, southeast of Tatums Pool, set surface pipe. Same company was rigging up No. 2 Mary Riddle, SE cor. SW NE Section 4-1s-3w.

The Wilcox Case

The State Supreme Court has advanced the hearing of Wilcox Oil & Gas Co. to January 30. Oral arguments before the State Supreme Court in the Wilcox case in which attorneys for the company attack the legality of proration orders for the Oklahoma City Field, which were issued by the Oklahoma Corporation Commission from November 1, 1931, to April 10, 1933, has been set for hearing. The court advanced the case for early hearing by sustaining a motion of Edwin Dabney, proration attorney, to advance.

The decision of the court in the case is considered important as the future course of proration division in regard to prosecutions for overproduction of oil, rests in this case. Several cases of alleged overproduction are pending the decision in this case.

Oklahoma County

Transit Oil Co.'s No. 1 Surback, 1,145 feet south and 50 feet west of C Section 22-11-3w, Oklahoma City Field, flowed 1,978 bbls. of oil in four hours from Wilcox sand at 6,510-85 feet.

Indian Territory Illuminating Oil Co.'s No. 4 Wickline, C NE SW NW Section 26-11-3w, flowed 979 bbls. of oil in four hours from the Wilcox sand at 6,480-6,602 feet.

Helmerick-Payne's No. 1 M.K.&T., 235 feet south and 1,040 feet east of NW cor. Section 3-11-3w, was drilling at 2,480 feet. Fred Shore's location for No. 1 Neal, 125 feet south and 1,275 feet east of C Section 15-11-3w, was abandoned. Sunray Oil Corp.'s No. 2 Donovan, 477 feet north and 221 feet east of NE SE Section 34-12-3w, is a location.

Seminole County

Amerada Petroleum Corp.'s No. 2 Fullerton, NE cor. SE Section 19-9-6, Seminole County, is an old Wilcox sand well plugged back to the Calvin sand and abandoned. It found the Calvin sand at 2,722-47 feet, and found water at 2,760 feet.

Mid-Continent Petroleum Corp.'s No. 4 Smith, SE cor. SW SW Section 12-8-6, is an old producer drilled to the second Wilcox sand at 4,293-4,303 feet, where it was completed for 80 bbls. of oil a day.

Carter Oil Co.'s No. 1 Community Randolph, C S half SE NE Section 35-11-6, is a new location in the Keokuk Falls area. Atlantic Oil Producing Co. and Phillips Petroleum Co.'s No. 1 Dobbs, C NW Section 18-9-5, is a location. Carter Oil Co.'s No. 1 H. Joe, C W half SE SW Section 2-9-6, was coring in the Wilcox sand at 4,259-63 feet. It had a showing of oil in the base of the sand. Ligon & Todd's No. 2 Kiker, Block 145, 394 feet south and 17 feet east of the NW cor. NW Section 30-8-8, near the Wewoka townsite, is digging cellar.

Garfield County

Sinclair Prairie Oil Co.'s No. 6 Walker, CSL SE SE Section 24-22-4w, Garber Pool, is an old well drilled deeper from 1,150 feet to a sand at 1,529-67 feet, where it was completed for 5 bbls. a day.

Noble County

In the Lucien Pool, Stanolind Oil & Gas Co. and Amerada Petroleum Corp.'s No. 1 D. Shonwald, C SE SE Section 20-20-2w, flowed 833 bbls. of oil in 14 hours from the Wilcox sand at 5,010-59 feet. It was drilling deeper at 5,165 feet. Same company has made a location for No. 2 Shonwald, C NE SE Section 20-20-2w. Magnolia Petroleum Co.'s No. 1 O. T. Long, C SW SE Section 20-20-2w, was drilling at 100 feet after landing surface pipe.

Stanolind Oil & Gas Co. and Amerada Petroleum Corp. have made location for No. 2 Bohn, C SE NE Section 29-20-2w.

Payne County

Mulberry Oil Co. is building rig for No. 4 Fisher, SW cor. NE Section 27-19-4, Payne County. It is a twin.

Pottawatomie County

Hilton Phillips' No. 1 Cherry, NE cor. SW Section 21-7-4, Pottawatomie County, was completed for 450 bbls. of oil a day after being treated with acid at 3,592-3,624 feet. The total depth of the well is 3,958 feet.

Superior Oil Co. and others' No. 1 Love, NW cor. Section 4-6-4, was abandoned at a total depth of 4,312 feet. It was treated with acid and given a shot in the Simpson dolomite at 4,262-4,309 feet.

The wildcat test, Hershall & Payne's No. 1 Lovelace, SW cor. NW Section 27-6-4, was abandoned at 3,770 feet after the 6-inch casing collapsed.

Superior Oil Co.'s No. 1 Boyd, NE cor. NW Section 32-5-5, an old well drilled deeper from 2,529 feet, was drilling at 2,646 feet. A showing of oil was found at 2,630-40 feet.

Seminole Supply Co.'s No. 1 Douglass, SW cor. SE NW Section 10-7-4, is a rig. Dickson and others' No. 1 Cockrell, SW cor. NW SE Section 35-8-4, was a cellar.

Lincoln County

In the West Chandler Pool, the next well to be completed is expected to be Magnolia Petroleum Co.'s No. 2 Wagoner, SE cor. Section 2-14-3. It found the Viola lime at 4,955 feet and has cemented casing at 4,986 feet. Same company has made a location for No. 1 Sedore, SE cor. SW NE Section 2-14-3. Same company's No. 3 Telford, SE cor. Section 7-14-3, was drilling at 2,300 feet.

Indian Territory Illuminating Oil Co.'s No. 2 Stanley, C SE NE NW Section 33-14-3, is a location south of production in the main part of the field.

Slick Estate's No. 2 Mayer, NW cor. NE NW Section 17-14-4, in the Chandler Pool, is a location. Slick, Inc.'s No. 2 Mayer, SW cor. NW NW Section 17-14-4, was rigging up. Same company's No. 3 Mayer, NE cor. NW NW Section 17-14-4, is a rig.

Magnolia Petroleum Co.'s No. 2 Green, C SE NE NE Section 18-14-4, is a location. Same company's No. 2 Wagoner, NE cor. NW NE Section 18-14-4, swabbed 490 bbls. of oil in 11 hours from sand at 4,985-5,000 feet.

Pontotoc County

Barnsdall Oil Co.'s No. 2 Hart, SW cor. NW NW Section 27-5-6, Pontotoc County, is an old well drilling deeper at 1,885 feet.

In the Fitts Pool, H. L. Wirrick's No. 1 fee, SE cor. SW Section 29-2-7, was opened seven hours and flowed 50 bbls. of oil, from the Sylvan pay at 3,451-54 feet. It was treated with 1,000 gallons of acid.

W. A. Delaney's No. 1 Hardin "A," NW cor. Section 30-2-7, flowed 100 bbls. of oil in 15 minutes through the 8-inch casing from the Sylvan at 3,960-62 feet.

Creek County

Bryan Petroleum Co.'s No. 2 McClain, C NE NW Section 34-19-9, Creek County, was pumping 20 bbls. a day from the Wilcox sand at 2,769-72 feet. It was shot with 8 quarts of explosive. The Bartlesville sand had a showing of oil at 2,279-90 feet.

William Sherry and others' No. 2 Harmon, C SW NE Section 28-19-9, an old well drilled deeper, has been shut in as a 250,000-foot gas well after an 8-quart shot in the Wilcox sand at 2,807-14 feet.

Mid-Co Oil Co. and others' No. 2 Cheatham, NW cor. SE SW Section 32-19-9, was abandoned at 2,522 feet. It had a showing of oil in Bartlesville sand at 2,422-42 feet.

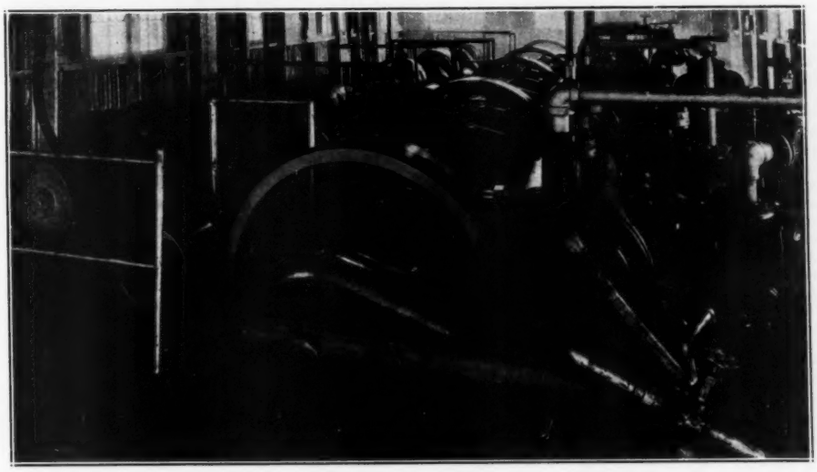
In the Olive Pool, Gibson and others' No. 3 Jackson, SW cor. NE NW Section 3-18-8, was spudding. Humphrey and others' No. 1 Unknown, SE cor. SW Section 27-18-8, was pumping 5 bbls. of oil a day after a shot of 10 quarts of explosive in Layton sand at 1,280-1,306 feet.

F. O. Akin and others' No. 11 Wilson, SE cor. NW SE Section 34-18-8, has been completed for 50 bbls. of oil a day after a 130-quart shot of explosive in the Layton sand at 1,260-72 feet.

Jones and Doss' No. 6 Wilson, CWL NW NE Section 34-18-8, was drilled to

ELECTRIC POWER

offers every advantage. . . . . .



This plant of the Denver Producing and Refining Company, located at East 6th and Santa Fe, in the Oklahoma City field, contains five reconditioned 75 HP compressors. Its first cost was considerably less than other types of gas lift equipment. It is compact and very economical to operate.

Many of the larger oil companies estimate that the gas lift period in the Oklahoma City field is limited to 12 TO 18 MONTHS, after which time other methods of mechanical lifting will have to be used.

Companies contemplating putting in electric driven gas lift compressors can obtain reconditioned equipment that can be depreciated within the estimated gas lifting period, or removed to another location.

Operation costs are lower when you use purchased electric power. It's always dependable . . . ever available . . . and you pay for only what you use. Our rates are now based on reasonable flat rate terms for only the actual amount of energy used.

Our engineers will be glad to supply you with comparative economic studies, or information on various lifting or drilling methods where the cost of power and fuel are factors.

OKLAHOMA GAS AND ELECTRIC COMPANY

Commercial Department

OKLAHOMA CITY, OKLAHOMA

1,652 feet and plugged back to 1,288-98 feet where it was completed for 15 bbls. of oil and 5 bbls. of water a day.

Bay State Oil Co.'s No. 3 Crabtree, NE cor. SE SW Section 34-18-8, made 35 bbls. of oil a day from Layton sand at 1,296-1,328 feet. It was shot with 120 quarts.

Jones and Doss' No. 8 Wilson, C NW NE Section 34-18-8, made 125 bbls. of oil a day after shooting with 150 quarts in the Layton sand at 1,278-1,308 feet.

Marrs and others' No. 5 Wilson was swabbing 65 bbls. of oil a day from the Layton sand at 1,310-40 feet. It was shot with 140 quarts. It is located in NW cor. NE NE Section 34-18-8.

Magnolia Petroleum Co.'s No. 5 Derrisaw, CSL NW SW Section 6-17-7, drilled deeper, was completed in Peru sand at 2,415-46 feet, for 7 bbls. a day. It was shot with 40 quarts.

Henry and others' No. 1 Watson, NW cor. Section 11-17-8, was abandoned at 1,440 feet after finding water in the Layton sand at 1,300-58 feet.

Bryan Petroleum Co.'s No. 2 Wilson, CEL NE NE Section 21-15-8, was abandoned after spudding at a total depth of 50 feet.

Johnson Oil & Refining Co. is rigging up for a test at No. 4 Prince, SE cor. NW NE Section 3-18-8. Gibson and others' No. 3 Jackson, SW cor. NE NW Section 3-18-8, was spudding.

Merritt and others' No. 8 Pine, CEL NE NE Section 27-18-8, was rigging up. W. B. Pine's No. 1 Pine, SE cor. NE SE Section 27-18-8, was preparing to shoot the Layton sand at 1,324-37 feet. Oil rose 450 feet in the hole.

Kilgore and others' No. 4 Tiger, NW cor. NE SW NE Section 34-18-8, was showing oil in Layton sand at 1,266-96 feet. It was shot with 120 quarts and was cleaning out.

Todd and Willoughby's No. 3 Unknown, CEL SE NW Section 34-18-8, was drilling at 400 feet. Sheldon Oil Co.'s No. 1 Unallotted, SE cor. NW NW Section 8-16-11, was spudding.

Phillips Petroleum Co.'s No. 6 Charles, SE cor. SW SE Section 25-15-7, was a cellar.

Okmulgee County

Carr and Peterson's No. 8 Ware, CWL SW SW Section 9-15-14, was completed for 60 bbls. a day after a 40-quart shot in salt sand at 803-39 feet.

Baker and others' No. 1 A. Haynes, CEL SE SW Section 11-13-12, was abandoned at a total depth of 2,148-50 feet after finding water.

Oklahoma Oil Corp.'s No. 1 Henry, NW cor. SE NW Section 1-11-12, was spudding. Colton and Phillips' No. 1 Jackson, NE cor. SW NE Section 20-13-13, was a machine. Gorham and McGinley's No. 1 A. Berryhill, NE cor. NW SE Section 17-14-13, is a machine on a twin location.

J. Delaney and others were spudding No. 2 Larney, NW cor. SE NW Section 28-15-14.

Claremont Oil Co.'s No. 4 Fisher is estimated to be good for 250 bbls. of oil from sand at 1,200-50 feet. It is located SW cor. NW NE Section 12-15-12.

Dodge Brothers' No. 5 A. Rentie, NE cor. SW SW Section 11-15-14, was abandoned at a total depth of 1,994 feet after finding water in the sand.

Bryan Petroleum Co.'s No. 1 Barnett, SW cor. Section 27-16-13, was spudding.

Wagoner County

Dodson and others have machine in for No. 2 Gibson, SE cor. NW SE NW Section 8-15-18.

Tulsa County

Pure Oil Co. and Johnson's No. 3 Brightsman, SW cor. SE NE Section 30-19-10, Tulsa County, was swabbing and flowing around 106 bbls. of oil a day after a 210-quart shot at 2,204-34 feet.

In the Bixby area, H. W. Bowder's No. 2 Perryman, SW cor. SE NE SW Section 5-17-14, was abandoned at 1,567 feet. The Burgess sand at 1,473-85 feet was dry. Same operator's No. 1 Perryman, NE cor. NW NE SW Section 5-17-14, was completed for 250,000 feet of gas a day from sandy lime at 1,515-23 feet.

Kerr and others' No. 1 Sanger, NE cor. NW SE SE Section 9-19-10, was spudding.

Logan County

In the Crescent area, Sinclair Prairie Oil Co.'s No. 1 Shaffer, NE cor. SW Section 28-17-4w, was shut in as a gas well making 23,000,000 feet of gas a day, with 250 pounds pressure. The gas was found in sand at 6,480-6,500 feet. The Wilcox sand carried water at 6,625-37½ feet.

Amerada Petroleum Corp.'s No. 1 Denny, C SE SE Section 33-17-4w, was drilling at 740 feet. Eason Oil Co.'s No. 2 Katscher, C NW SW Section 34-17-4w, was drilling 710 feet. Gypsy Oil Co. and Carter Oil Co.'s No. 2 Knowles, C NW NW Section 34-17-4w, was digging cellar.

Pittsburg County

Utilities Production Co.'s No. 1 Carney, C NE NE Section 9-7-18, was abandoned at a total depth of 2,126 feet. Same company's No. 6 State Bank, NW cor. SW NW Section 9-7-18, was drilling at 200 feet.

Okfuskee County

James and others' No. 1 Stephenson, NW cor. NE SE Section 14-10-11, was an old well drilled deeper to 2,001 feet where it made 122 bbls. of oil and 9,000,000 feet of gas a day and was recompleted.

The Texas Co.'s No. 3 Gregory, NE cor. Section 36-10-11, was making 10,000,000 feet of gas from the Deaner sand at 2,512-18 feet and was drilling deeper. W. E. Fleming's No. 1 Johnson, NE cor. SW SE SE Section 2-10-11, was drilling at 500 feet.

Caddo County

Mid-Kansas Oil & Gas Co.'s No. 1 Yule, SE cor. SW Section 1-5-9w, is a new location in the vicinity of where the company drilled the deepest well in Oklahoma.

Osage County

Continental Oil Co.'s No. 5, SE cor. SW Section 15-24-8, Osage County, swabbed 14 bbls. of oil from chat at 2,338-70 feet. It was shot with 50 quarts.

Kasiske and Higgins' No. 6, SW cor. SE NE Section 24-24-7, was abandoned at 735 feet.

Oklahoma Power & Water Co.'s No. 136, NW cor. SE Section 21-21-9, found a showing of oil at 2,403 feet and was later abandoned at 2,447 feet in lime.

F. A. Haver's No. 2, CSL SE SW Section 16-23-11, an old well drilled deeper from 1,797-1,809 feet, was completed for 12 bbls. a day. The total depth was 1,811 feet.

J. S. Dewar's No. 1, NW cor. Section 32-28-11, is a location.

Alfalfa County

Acre and others' No. 1 Acre, C SW NE Section 14-24-11w, old well drilling, found a showing of oil at 6,310 feet. The oil rose 3,000 feet in the hole. The tools were lost and it is now fishing.

Stephens County

George Pace and others' No. 3 Duncan, SW cor. NW NW NE Section 28-2s-7w (twin), was completed making 2 bbls. of oil and 100 bbls. of water from sand at 1,638-92 feet.

Wildcat Operations in Oklahoma

Week Ending January 20

Northern Oklahoma

ALFALFA COUNTY

Company, farm and location—	Remarks:
Acre et al's No. 1 Acre, C SW NE Sec. 14-24-11w	Drlg. 6,310 ft.; 3,000 ft. oil in hole; fishing tools.

BECKHAM COUNTY

West Oak Gas Co. et al's No. 1 Powell, NW SW Sec. 11-9-25w	Drlg. 2,542 ft.

CADDO COUNTY

Denver Prod. & Ref. Co.'s No. 1 Noe, NW SW SW Sec. 34-10-10w	T.D. 9,540 ft.; C.O.; D.P. froze.

COMANCHE COUNTY

Starrs et al's No. 1 Crutcher, C NE Sec. 11-1-12w	Drlg. 100 ft.

DEWEY COUNTY

Continental Oil Co.'s No. 1 Beaumer, SW NE Sec. 8-19-20w	Drlg. 2,930 ft.

GARFIELD COUNTY

Indian Terr. Illum. Oil Co.'s No. 1 Clark, C NW NW Sec. 34-21-6w	T.D. 6,397 ft.; C.O.

GARVIN COUNTY

Anderson & Kerr's No. 1 Rodke, NW NE NW Sec. 21-4-1w	Rig.

HUGHES COUNTY

J. B. Hill's No. 1-A Perkins, C W½ SW SW Sec. 7-5-9	Drlg. 585 ft.
Birk-Kan.'s No. 1 Gardner, NE NW Sec. 22-8-9	Spudded and S.D.
Scruggs et al's No. 1 Black, NE Sec. 13-9-10	S.D. 2,780 ft.

KAY COUNTY

Burton Lewright et al's No. 1 Leseman, SW NE SE Sec. 4-28-2	Rig.

KIOWA COUNTY

Erickson et al's No. 1 Heatherton, NW SW Sec. 14-6-16w	Drlg. 512 ft.

LINCOLN COUNTY

Amerada Pet. and Stanolind O. & G. Co.'s No. 1 Martinek, NW SE Sec. 35-13-5e	P.B. to 3,915 ft.; drlg. 4,230 ft.
Huckleberry et al's No. 1 Boland, SW cor. Sec. 25-12-3e	Fishing 5,092 ft.
I. T. I. O. Co.'s No. 2 Stanley, C SE NE NW Sec. 33-14-3	Location.

LOGAN COUNTY

Anderson & Kerr's No. 1-A Hull, 455 ft. S, 330 ft. W of E cor. Sec. 11-18-4w	Rig on ground.
W. N. Anthony's No. 1 Fruin, SE SW Sec. 4-16-1	Rig on ground.
Amerada and Stanolind's No. 1 Fouts, NW NE Sec. 14-17-1w	Drlg. 2,900 ft.
Barnsdall Oil Co. et al's No. 1 Seyller, NE SE Sec. 12-15-4w	Drlg. 5,040 ft.
Jadeka Dev. Co.'s No. 1 Frakes, C SW NE SW sec. 16-15-6w	T.D. 2,245 ft.; fishing.

MUSKOGEE COUNTY

J. S. Routt et al's No. 1 Escoe, CWL SE NE Sec. 17-13-17	T.D. 1,200 ft.; S.D. for 10-in. csg.

OKLAHOMA COUNTY

Springrose Drlg. Co.'s No. 1 Edwards, C SE SE Sec. 19-11-1	Cmtd. csg. 5,976 ft.

PAYNE COUNTY

L. G. Hulse's No. 1 Sloan, SW NW SE Sec. 19-17-3	Fishing 1,474 ft.
Mid-Continent Pet. Corp.'s No. 1 Swank, SE NE NE Sec. 19-19-3	Misener 4,544-55 ft.; wtr.

PITTSBURG COUNTY

Moffett & Hall's No. 1 Jones, C NE NW Sec. 14-8-14	Lost tools; T.D. 3,200 ft.; S.D.
Stencil Oil Co.'s No. 1 Chunn, SE NW Sec. 29-4-14	Rig.

PONTOTOC COUNTY

Galbreath's No. 1 Stafford, NE SE SE Sec. 31-2-6	T.D. 1,380 ft.; fishing.
W. E. McGraw's No. 1 Mayhue, NE Sec. 19-2-6	Drlg. 1,871 ft.
Stanolind-Amerada's No. 1 Aldridge, C N½ S½ SE Sec. 2-5-7	Fishing 4,295 ft.
Delaney et al's No. 1 Dawes-Hardin, SE NW Sec. 30-2-7	Drlg. 990 ft.
Williams' No. 1 Kroth, NE SE Sec. 33-3-4	H.F.W. 1,977 ft.

POTTAWATOMIE COUNTY

Deep Rock and Margay's No. 2 Adams, NW NE Sec. 11-6-3	Rigging up.
Atlantic Oil Prod. Co.'s No. 1 School land, C NE NW NW Sec. 36-10-4	P.B. to 4,240 ft.; drlg. 4,249 ft.
Payne Drlg. Co.'s No. 1 Lovelace, NW SW NW Sec. 27-6-4	T.D. 3,780 ft.; csg. collapsed; abd.
Texas Co.'s No. 1 Terfertiller, NW NE Sec. 4-8-3	Drlg. 4,680 ft.

SEMINOLE COUNTY

John Burns' No. 1-B Shepard, SE NE Sec. 4-8-8 (O. W.D.D.)	T.D. 1,658 ft.; S.D.
Amerada Pet. Corp.'s No. 1 Parsons, 330 ft. N of S line of Lot 7, Sec. 12-11-8	Csg. cmtd. 4,430 ft.
Flemlee et al's No. 1 Bowlega, SE NE SW Sec. 1-7-7	S.D. 1,260 ft.

WASHITA COUNTY

McWhirter & Bost's No. 1 Hall, SW SE SE Sec. 23-8-19w	T.D. 2,155 ft.; lost sand pump.

Southern Oklahoma

ATOKA COUNTY

J. D. Boukan's No. 1 Howard, NW SW NW Sec. 20-2s-10e	Drlg. 1,225 ft.
Brookshire et al's No. 1 Rowland, NW NE NE Sec. 14-3s-10e	Fishing 3,443 ft.

CARTER COUNTY

Kilgore et al's No. 1 Williams, SE NW SW Sec. 30-1n-2w	Drlg. 700 ft.

GARVIN COUNTY

National Prod. Co.'s No. 1 Littrell, NE cor. Sec. 31-3n-3w	S.D. 299 ft.

MURRAY COUNTY

A. E. Harden's No. 1 Sadler, NE Sec. 19-1-2	Rig.
T. E. Revelle et al's No. 1 Wolfe, NE cor. Sec. 18-1-2	Running 8-in. pipe; T.D. 1,500 ft.
F. E. Revelle's No. 1 Wolfe, NE cor. Sec. 18-1n-2e	T.D. 2,090 ft.; csg. frozen at 2,060 ft.

PUSHMATAHA COUNTY

J. V. Scrivener et al's No. 1 Swink, C NE SE Sec. 29-4s-20e	Setting csg. 410 ft.
Whitehead et al's No. 1 Messer, SE SW SW Sec. 35-2s-15e	T.D. 2,405 ft.; S.D.

STEPHENS COUNTY

J. W. Madison's No. 1 Tussey, SW SE NW Sec. 24-1n-4w	S.D. 3,210 ft.
Lloyd Oil Co.'s No. 1 McKimmons, SW cor. Sec. 15-1n-4w	T.D. 3,549 ft.
MacMo Oil Co.'s No. 1 Butler, SW NW SE Sec. 36-2s-7w	S.D. 20 ft.

TILLMAN COUNTY

J. H. Everett's No. 1 Crane, SW cor. Sec. 15-3s-14w	Rig.

PANHANDLE CONTRACTORS MEET

PAMPA, Tex., Jan. 20.—A Panhandle Drilling Contractors Association has been formed here, with Earl Clayton of Wichita Falls as president, George Cree vice president and S. C. Evans secretary-treasurer.

A committee to act as a board of directors and to prepare a chart of drilling costs in the Panhandle Field as a basis for discussion of a code of fair competition was appointed. It is composed of Bill Kelley, George Cree, S. C. Evans, Bill McSpadden, Charlie Hickman, Ross Magill, C. T. Gardner, A. E. Herman and M. T. Roach.

Ed Dunigan, chairman of the district oil code enforcement board, acted as temporary chairman. Mike Delaney, president of the Texas, New Mexico and Louisiana Drilling Contractors Association, told of developments in his organization and urged adoption of a Panhandle drilling code at once. William McBee, secretary of the same group, explained the oil code provisions governing drilling.

More than 75 drilling contractors attended the local meeting.

W. J. YARROW DIES

TULARE, Calif., Jan. 20.—Walter J. Yarrow, 58 years old, former international president of the oil workers union and said to have been the first geologist to recognize the possibilities of the Kettleman oil field in California, died at Avenal from a cerebral hemorrhage. He spent six weeks in Washington last summer as adviser to General Hugh Johnson, NRA administrator, in drafting the drilling and production phases of the oil code. During the war he drafted oil production schedules for California.

GIUSEPPE FACCIOLI DIES

Giuseppe Faccioli, former works engineer and associate manager of the Pittsfield, Mass., works of the General Electric Co., died in Pittsfield, January 13, four years after his retirement because of ill health.

C. W. DAWSON DIES

SHREVEPORT, La., Jan. 20.—Death has claimed the driller of the discovery well in the Haynesville oil field, Charles W. Dawson, 64 years old.

Old Naborton Field Test Opens New Horizon; Deeper Drilling Features North Louisiana

By J. R. CRUMPTON
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Jan. 22.—Bailey Gaunce's No. 1 Jenkins, Section 35-13-12, DeSoto Parish, tested 12,141,000 feet of gas with 1,480 feet rock pressure from 3,577 feet to lead the wildcat developments in the North Louisiana district during the past week. The well is in the old Naborton Field, northeast of the town of Mansfield and has been drilled deeper than previous pay sands in that area. The hole has two strings of casing other than surface casing, 7-inch having been set at 2,900 feet, and 5¼-inch set at 3,530 feet. It is evident that the latter will have to be recemented, however, as practically all of the gas flow is coming between it and the 7-inch, and which in all likelihood accounts for the loss of pressure from 1,480 to 450 pounds on a test gauge. The well is also making a small spray of salt water which is attributed to the bad casing seat. A drill stem test several weeks ago developed an estimated 15,000,000 feet of gas with no salt water, coming from 14 feet of sand. With the 5¼-inch casing reset in good condition, the well should make a fair gasser, thus opening another gas producing horizon in another old field in this district.

Deeper Drilling

Deeper drilling in both oil and gas fields where shallow sands produce has been quite evident in the fields of North Louisiana during the past few months. In the Sligo gas field, Bossier Parish, United Gas Public Service Co. is drilling deeper to the upper Trinity in its No. 1 Skannell Unit in Section 13-17-12. Started as a deep test to this horizon the well blew out with a large volume of gas from 3,220 feet, was killed, casing set and tested 75 bbls. of oil daily. There is one other well in this field producing from the upper Trinity. On the northern flank of the Elm Grove Field, Dr. C. R. Reid is making a test deeper than the paying sands in that field. His No. 1 Dotys, Section 7-16-11, has cored 2 feet of gas sand from 2,947-49 feet and arrangements are being made to set casing to test.

A similar test in the Haynesville Field, Haynesville Partnership's No. 1 Anna Taylor, Section 11-23-8, has not fared so well on the tests that have been made from the top and below the Oolitic lime in the Glen Rose. Although a good show of oil developed on drill stem test from 4,379-4,408 feet, salt water and also evident, and the crew is coring lime and shale at 4,546 feet. In the Rodessa deep gas field, Caddo Parish, R. W. Norton's attempt to get an oil well from the Trinity in his No. 1-B J. B. French, Section 34-23-16, has met with neither success nor failure at this writing. The well is drilling at 5,790 feet which is more than 100 feet below the gas producing horizon in that field, and there is no report that the gas producing Oolitic lime was tested at that depth.

NORTH LOUISIANA

The week's completions, a total of seven in North Louisiana, consisted of five oil wells and two dry holes. The eastern Zwolle Field north of Many furnished two producers to three for the Converse Field, but led by a large margin in total open flow. Magnolia Petroleum Co. had the distinction of completing two good wells. Its No. 1 Lilly, Section 8-7-11, is flowing 380 bbls. daily from 2,590 feet, and No. 2 Lilly in the same section was a 600-bbl. flowing well from 2,610 feet. On first test a few weeks ago, both wells tested dry with only slight showings from the same total depths, and acid was used to make the chalk more soluble. This has been the experience of many operators in these chalk rock producing areas, and the number of dry holes has been greatly diminished since the uniform use of acid began more than a year ago.

In the Converse Field, J. E. Freemen's No. 1 V. V. Barr, Section 15-9-13, was completed pumping 25 bbls. daily from 1,984 feet. Helena Oil & Gas Co. reported two small wells. Its No. 1 Chambliss, Section 20-9-13, was a 10-bbl. pumper from 1,954 feet, and No. 1 E. K. Harris, Section 10-9-13, is swabbing 50 bbls. daily from 1,955 feet. Two dry holes in proximity to the Converse Field finishes the list of Sabine Parish completions. A. F. Allen's No. 1 G. W. Belton, Section 33-9-13, was dry and abandoned at 1,938 feet in chalk. H. C. Lessenger's No. 1 Bowman-Hicks, Section 13-9-13, a test to the sands below the chalk, was abandoned at 3,405 feet. This well has been closely watched since it had a gas blowout at 3,283 feet. Seven-inch casing was set at 3,250 feet and the several tests since have been failures. A well in the Converse townsite area, Miles and Strickland's No. 1 W. R. Ross & Son, Section 10-9-13, is not yet a completed well as was reported in this column last week. It made several heads with an estimated 300 bbls. daily flow, but went dead and is now standing full of oil at a total depth of 2,007 feet. If it fails to flow after running tubing, a standard rig will be installed to pump.

Wildcats

None of the rank wildcats in unproven areas were testing during the past week. George R. Stevens and others' No. 1 Clarke-Boyce Lumber Co., Section 10-5n-6w, in the southern part of Natchitoches Parish, is making good time, drilling at 1,830 feet after setting 10-inch surface casing at 210 feet. This test, about midway between the producing areas of oil and gas on the northern part of the Sabine Uplift to the north and the Conroe-Jackson trend in central Louisiana on the south, is being closely watched. Associated with Mr. Stevens, formerly geologist for Simms Oil Co. in Shreveport, is R. G. Smitherman, one of the discoverers of the Haynesville Field, and Pat Marr, independent operator in many fields of the Mid-Continent area.

On a geophysical high worked block south of Sibley in Webster Parish, J. P. Evans' No. 1 Crichton estate, Section 34-18-9, after setting 10-inch casing at 150 feet, topped the Arkadelphia at 1,427 feet and the first sandy lime at 1,505 feet. Taking the top of the Annona chalk as a temporary marker, it does not appear at this writing that the test will bear out the prophecies of the surveys, which have been based on two previous tests drilled to the north and northwest on the same block within the past two months. However, these surveys have been based recently upon the base of the Annona, not the top, and a thinning of this formation may still make the Crichton well check higher, as expected, than the Burson test about 1 mile to the north. It has been the opinion of several practical operators in this district, and wildcatters of many years, that the high of this particular structure, known as the "Dubberly High," exists around the town of Sibley, north of the three tests already drilled, and the results of the present test, checking about 40 feet low, seems to bear out this contention. At any rate, the area is destined to get one or more tests before giving up hopes of a small oil field on that particular structure.

In the Spring Ridge Field of Sabine Parish, a few miles south of the Pleasant Hill Field, Foster and Woodley's No. 1 Stevens, Section 17-9-11, seems destined to be a failure, after many efforts to convert a previous drill stem test with a good show of oil and gas into an eventual producer. Two other wells drilled within the immediate vicinity during the last two years have resulted in a good gas well and a 30-bbl. well of 39 gravity oil, flowing by heads. The present well held out indications of being a good producer, but after casing was set, tested, acid used to increase the solubility, and finally the casing milled out and sidetracked with a new hole to the original depth of 3,166 feet, the tests did not show the faintest trace of the original oil and gas flow.

ARKANSAS

This district reported no new developments during the week with the exception of one dry hole and three wells in the Miller County Field that are practically assured of being producers. In Union County, Sam M. Richardson's No. 1 Hammond, Section 19-17-15, encountered salt water and was abandoned at 2,207 feet. The Miller County wells that will be brought in under their own pressure or rigged up to pump are: Arkanva Oil Corp.'s No. 1 Smith, formerly C. E. Murdock, Section 33-15-26, bailing and standing 2,700 feet in oil with the bottom of the hole at 2,926 feet; C. E. Murdock's No. 1 Andrew Rose, Section 4-16-26, waiting on standard rig to pump with hole full of oil at 2,933 feet, and the same condition exists at 2,931 feet in the Texarkana Oil Corp.'s No. 2 E. L. Beck in Section 33-15-26. The Magnolia Petroleum Co., the only major oil company to drill a well in this field, is rigging up on its second test, No. 2 Olivet, Section 4-16-26.

In the Urbana Field of Union County, Marine Oil Co.'s No. 2-D Thompson, Section 3-18-13, is bailing and swabbing around 50 bbls. daily from 3,566 feet. Same company's No. 2 Union Saw Mill Co., Section 3-18-13, is arranging to pump after testing 75 bbls. daily, flowing by heads a few weeks ago. E. R. Henderson's No. 1 J. Vines, Section 29-18-14, reports 3 feet of sand from the top of the Nacatoch from 2,161-64 feet, and arrangements are being made to set 7-inch casing to test.

Wildcat Operations in Louisiana-Arkansas

(Rotary operations unless otherwise designated)

North Louisiana

BIENVILLE PARISH

Company, well, farm name, section and block— Remarks:

Poole & Johnson's No. 1 H. E. Suddith, 1,170 ft. E and S, C Sec. 28-14-16 ..... Derrick.

BOSSIER PARISH

C. E. Reid, tr.'s No. 1 Dotys, 730 ft. S, 618 ft. W, NE SE Sec. 7-16-11 ..... Coring 2,949 ft.

CADDO PARISH

W. O. Bliss' No. 1 McDade, 330 ft. N and E, SW cor. NW NW Sec. 2-20-15 ..... Rigging up.

CALDWELL PARISH

Hartley et al's No. 1 Taylor, most southeasterly cor. Sec. 42-14-4e ..... Derrick.

Terrell & Price's No. 1 La. Central Lbr. Co., 300 ft. N, 200 ft. W, SE cor. NW NE Sec. 18-11-3e ..... Reaming to bottom 1,960 ft.

CATAHOULA PARISH

T. R. Hincey's No. 1 Millsaps, Sec. 32-9-6e ..... Derrick pattern.

CLAIBORNE PARISH

Haynesville Partnership's No. 1 Anna Taylor, 330 ft. N and E, SW cor. SE SW Sec. 11-23-8 ..... Coring 4,546 ft.

DE SOTO PARISH

Coker Oil Corp.'s No. 1 Huson, 200 ft. S, 500 ft. W, NE cor. NW Sec. 8-12-14 ..... Drlg. 2,125 ft.

Geo. M. LeGrand's No. 1 Faria, 330 ft. S and W, NE cor. SE Sec. 19-11-15 ..... Tested dry, W.O. 2,360 ft.

MOREHOUSE PARISH

Zeiger & Bacon's No. 1 Crossett, 400 ft. N, 300 ft. W, SE cor. Sec. 41-23-6e ..... S.D. for csg. 90 ft.

NATCHITOCHES PARISH

Geo. R. Stevens' No. 1 Clarke-Boyce Lbr. Co., 330 ft. N and W, SE cor. Sec. 10-5n-6w ..... Drlg. 1,830 ft.

RED RIVER PARISH

A. F. Sales' No. 1 Raley, 660 ft. N and E of C Sec. 18-13-8, ... Set 12½-in. 110 ft.; drlg. 1,300 ft.

SABINE PARISH

J. F. Anderson's No. 1 Paul, Sec. 14-9-14 ..... Set 10-in. 58 ft.; drlg. 1,450 ft.

Frank R. Foster, Inc.'s No. 1 D. E. Stephens, 330 ft. S and E, NW cor. SE NW Sec. 17-9-11 ..... S.D. 3,186 ft.

(Continued on Page 138)

Daily Production

NORTH LOUISIANA

Caddo, light	4,550
Caddo, heavy	1,390
Converse	1,140
Cotton Valley	530
DeSoto and Red River	1,475
Elm Grove	345
Haynesville	3,750
Holly	205
Homer	2,600
Pleasant Hill	230
Sarepta-Carterville	780
Urania	3,055
Zwolle	6,950
Total	27,000
Last week	26,656
Increase	344

SOUTH ARKANSAS

Champagnolle	1,305
El Dorado	2,490
Linbon	405
Miller County	910
Nevada	550
Smackover, light	2,600
Smackover, heavy	20,885
Stephens	650
Urbana	2,365
Total	32,160
Last week	32,253
Decrease	93
Total both states	59,160
Last week	58,909
Increase	251

New Cleveland Play Is Spreading Westward to Splendora District, Montgomery County

By NEIL WILLIAMS
Gulf Coast Bureau, The Oil and Gas Journal

HOUSTON, Tex., Jan. 22.—Particular interest on the Gulf Coast the past week was centered on the active leasing and royalty play which has been spreading westward from the new Cleveland Field of northwestern Liberty County into eastern Montgomery taking in what is known as the Splendora district. This is turning out one of the "hottest" plays since that which took place around Tomball and Huffsmith, of northern Harris and southern Montgomery Counties, the fore part of 1933. The basis of trading has jumped to around $50 to $70 an acre, although the Splendora area is at present in strictly wildcat territory, some 7 to 10 miles west of Gulf Production Co.'s wildcat producer south of Cleveland in Liberty County.

Trading, which has been confined largely to independents, has been following an almost direct trend between the large Gulf block at Cleveland to Conroe. Splendora is located on that trend about midway between the Cleveland area and Conroe, but it is not generally believed there will be any linking of Cleveland and Splendora with Conroe, as the latter field apparently has been fairly well defined with dry holes and playing out of production to the east, as well as on all sides of it. It is likely that Splendora, if it turns out anything, will prove a separate proposition even to Cleveland.

Considering the activity and interest displayed in leases and royalties around Splendora, and the comparatively high prices which again have been set for wildcat acreage and the proximity to the immediate Cleveland district, the wildcat test being started up by the Steen Drilling Co. on the Long Leaf Timber property in the Walker County School Land Survey will be of especial importance and will be watched closely. While heavy rains have slowed operations and the moving in of equipment, the test at latest report was about completed rigging up and was ready to spud. The location of the test itself is about 7 miles west of the Gulf's wildcat producer at Cleveland.

Second Test at Cleveland

Gulf Production Co. late in the week also had completed rigging up for its second test on its Cleveland block, that test being No. 2 Kirby, 1,866 feet south of the discovery well, No. 1 Kirby, completed late in December in a Cockfield sand at 5,716-24 feet. A derrick was up and rig was being set up for No. 1 Grogan, in the Clayton Harper Survey, approximately 4,000 feet to the north of the discovery well.

For the present, chief interest in the district is being directed at Brown & Wheeler's No. 1 Foster Lumber Co., located in the Ann Holhousen Survey, about 6 miles to the south of the Gulf well. This test, drilling late in the week below 4,000 feet, now is getting well down and within a couple of weeks should be telling the story. It topped the Heterostegina zone of the Marine Oligocene at 3,080 feet, it is reported. The same operators have two additional locations, one for No. 1 Wright, in the J. Eldridge Survey, Lot 45, and the other for No. 1 Goldberg, in the J. Eldridge Survey, Lot 14, these being about 2 miles southwest of the Gulf well.

Tomball Extension

Indication of an extension of the Tomball Field a mile farther northwest into Montgomery County was given by the finding of sand in Stanolind Oil & Gas Co.'s No. 1 F. Brautigan, in the Nancy Anderson Survey. On a drill stem test of the sand at 5,487-5,525 feet, a pressure of 275 pounds of dry gas was built up through a quarter-inch choke with the tool open 4½ minutes. The test is being cored deeper.

The nearest production to this well consists of three wells on the Montgomery and Harris County line (Spring Creek), which in themselves are about three-quarters of a mile to the northwest of the main Tomball Field. One of those three wells was completed the past week, it being Windsor Oil Co.'s No. 1 Petrich on the Harris County side in the J. H. Edwards Survey. It flowed 120 bbls. in 24 hours through a half inch choke from sand at a total depth of 5,568 feet, and showed a tubing pressure of 850 pounds and casing pressure of 2,150 pounds. The other two wells are Stanolind Oil & Gas Co. and Amerada Petroleum Corp.'s Nos. 1 and 2 Theis, just across the line in Montgomery County. These companies' No. 3 Theis, in the northwest corner of their lease, and between the production and the new Brautigan well, has just been abandoned as dry at a total depth of 5,643 feet.

In the main Tomball Field, Amerada Petroleum Corp. and Stanolind Oil & Gas Co. got another producer in their No. 2 Otto Rudel, located in the north end. It flowed initially at the rate of 18 bbls. an hour through a quarter-inch choke from sand at a total depth of 5,578 feet.

Gulf Coast Fields and Wildcats

Week Ending January 20

Company, farm and location—	Remarks:
DAMON MOUND—BRAZORIA COUNTY	
Intercoastal Oil Co.'s No. 11 Wisdom, 350 ft. E of No. 6, Blk. 51, Lot D, A. Durst Sur.	S.D. 2,605 ft.
MANVEL—BRAZORIA COUNTY	
Texas Co.'s No. 6-A Belcher, H. N. Little Sur., S 42 deg. W 2,400 ft., S 48 deg. E 400 ft. from N cor. lease.	T.D. 5,476 ft.; cmtd. 7-in. csg. 5,582 ft.; standing.
Texas Co.'s No. 7-A Belcher, 1,430 ft. S 48 deg. E, 900 ft. W 42 deg. E from NW cor. of W. T. Belcher "A" lease, H. N. Little Sur.	Drlg. shale and lime 5,671 ft.
Texas Co.'s No. 4 O. F. Ewing, 415 ft. from NW line, Lot 8, and 787.2 ft. from NE line, H. N. Little Sur.	Rig.
Texas Co.'s No. 1 S. Scopal, 5,835 ft. from S line and 348 ft. from E and W lines of Lot 25, H.&T.B. Sur., Sec. 74	Derrick.
STRATTON RIDGE—BRAZORIA COUNTY	
Amerada Pet. Corp.'s No. 5 Seaborn, Austin-Williams Sur., 600 ft. E of No. 3 and 229 ft. S at R/A	Coring sand and shale 4,875 ft.
BARBERS HILL—CHAMBERS COUNTY	
Mills Bennett Prod. Co.'s No. 1-D Barber, 73 ft. S, 65 ft. W of NE cor.	Coring sand 4,719 ft.
Mills Bennett Prod. Co.'s No. 4 Means, 150 ft. W of No. 3, Henry Griffith League	Drlg. shale 5,361 ft.
Humble O. & R. Co.'s No. 5-B Kirby, Henry Griffith League, 928 ft. W of E line, 537 ft. N of S line of tract	Rig.
Sinclair Prairie Oil Co.'s No. 15 Wilburn, Henry Griffith League, 150 ft. W of No. 14	T.D. 4,188 ft.; sidetracking stuck drill pipe in sandy lime 3,411 ft.
Sinclair Prairie Oil Co.'s No. 17 Wilburn, 125 ft. N of S line, 150 ft. W of No. 16, H. Griffith League	Second hole; drlg. sandy and boulders 695 ft.
Sun Oil Co.'s No. 15 Wilburn, 405 ft. from E, 50 ft. from W line	Drlg. rock 1,411 ft.
Sun Oil Co.'s No. 14 J. Wilburn (W.O.), Henry Hodges Sur.	Swabbing 5,162 ft.
Sun Oil Co.'s No. 17 J. Wilburn, Henry Griffith League, 150 ft. W of No. 6 and 50 ft. S of N line.	Drlg. shale 3,752 ft.
Sun Oil Co.'s No. 18 J. Wilburn, Henry Griffith League, 50 ft. N of S line, 50 ft. E of W line of lease	Drlg. shale 4,307 ft.
Sun Oil Co.'s No. 19 J. Wilburn, 220 ft. E of W line, 343 ft. S of N line, Wm. Hodges Sur.	Derrick.
Sun Oil Co.'s No. 20 J. Wilburn, Wm. Hodges Sur., 60 ft. E of W line, 343 ft. S of N line	Drlg. rock 908 ft.
Sun Oil Co.'s No. 4 Higgins, Wm. Hodges Sur., 100 ft. W of No. 2	Rig.
Texas Co.'s No. 8 Wilburn (W.O.), Henry Griffith League	T.D. 5,195 ft.; pulling screen to work over.
Texas Gulf Prod. Co.'s No. 8-H Kirby, 333 ft. W of No. 6-H, 70 ft. N of S line, Henry Griffith League (W.O.)	T.D. 5,024 ft.; sidetracked at 3,179 ft.; drlg. sand 4,408 ft.
Texas Gulf Prod. Co.'s No. 4 Wilburn, Wm. Hodges Sur., 330 ft. N of S line 50 ft. W of E line	Drlg. rock 1,144 ft.
Yount Lee Oil Co.'s No. 23 Chambers County, Wm. Bloodgood Sur., 116.9 ft. S of N line and 347 ft. W of E line	Rig.
Yount Lee Oil Co.'s No. 7 Phillips, offset Sun Oil Co.'s No. 18 Wilburn	Drlg. cap rock 1,226 ft.
Yount Lee Oil Co.'s No. 8 Phillips, Wm. Hodges Sur.	Derrick.
BIG CREEK—FORT BEND COUNTY	
Gulf Stream, Inc.'s No. 1 A. H. Theis, 236 ft. E of old No. 4 A. H. Theis in line, Mitchell Young Sur.	Abnd. 2,847 ft.
McPhail et al's No. 2 Wheat	Standing 1,230 ft.
ORCHARD—FORT BEND COUNTY	
Gulf Prod. Co.'s No. 28 Moore, James Frazier Sur., 380 ft. E, 100 ft. S of No. 31	Drlg. shale 3,106 ft.
RABBS RIDGE—FORT BEND COUNTY	
Gulf Prod. Co.'s No. 3 Hammerstram, Samuel Kennedy Sur.	Comp. flowing by heads 85 bbls. per day, ⅝-in. choke, 5,395 ft.
Humble O. & R. Co.'s No. 9 George, J. Rabb Sur.	Dry and abnd. 5,560 ft.
Humble Oil & Ref. Co. and Gulf Prod. Co.'s No. 10-A George, J. Rabb Sur., E of No. 9-A	Rig.
Humble O. & R. Co.'s No. 19-B Lockwood & Sharp, J. Rabb Sur.	Drlg. shale 3,825 ft.
Humble O. & R. Co.'s No. 20-B Lockwood & Sharp, J. Rabb Sur.	Drlg. shale 5,091 ft.
Texas Co.'s No. 2 Sherman McCall, Samuel Kennedy Sur., 665 ft. N and 390 ft. W of SE cor. of lease	Rig.
HIGH ISLAND—GALVESTON COUNTY	
Yount Lee Oil Co.'s No. 2 Broussard-Orme, Martin Dunman Sur., 300 ft. S of No. 1-B Cade	Drlg. shale 5,800 ft.
Yount Lee Oil Co.'s No. 4 Broussard & Orme, M. Dunman Sur., 129 ft. SW of No. 3	Drlg. shale 1,525 ft.
Yount Lee Oil Co.'s No. 2-B Cade, 170 ft. from N line, 100 ft. from E line of 40-ac. lease, N. Fitzsimmons Sur.	Drlg. shale 3,010 ft.
Yount Lee Oil Co.'s No. 18 Cade, 600 ft. NW of No. 1-B Cade, 755 ft. from No. 1 Smith, N. Fitzsimmons Sur.	Abnd. 5,756 ft.
Yount Lee Oil Co.'s No. 20 Smith, 1,210 ft. from W line, 1,790 ft. from N line of 200-ac. tract, Dunman Sur.	Drlg. hard sand 4,504 ft.

(Continued on Page 139)

Livingston District

In the Livingston district of southern Polk County, the prospect for immediate new drilling development rests largely upon the outcome of S. F. Gist Oil Corp.'s No. 1 Kingsbury, which is nippling up to drill 7-inch plug cemented at 4,129 feet to test a showing of oil at a total depth of 4,242 feet. This test is northeast of the field, and at present is the only active operation in the district. If it makes a well, new territory will be opened for drilling and several additional tests probably will be started at once but otherwise there is very little chance of much more activity for the field, the productive area having been fairly well defined on all sides except in the direction of the Gist well.

Humble Oil & Refining Co. abandoned its No. 8 Granbury, 2 miles west of production of the Livingston Field, during the week. This test found salt water in the Livingston pay horizon and after being deepened a couple of hundred feet was given up.

Iowa Field

The Iowa Field on the Calcasieu-Jefferson Davis Parish line, in Louisiana, added another good producer in the deep sand pay with the completion of Barnsdall Oil Co.'s No. 3 Fontenot flowing initially at the rate of 1,360 bbls. daily through a twenty-four-sixty-fourths inch choke from sand at a total depth of 6,997 feet. This well, the second for this company, is a quarter mile north of the first, both being a quarter mile east of production. Magnolia Petroleum Co.'s No. 5 Waite, promising a half mile westward extension of the deep sand production, was being brought in over the week end with bottom at 6,970 feet.

Slightly less than 2 miles east of the Iowa Field, George W. Strake, discoverer of the Conroe Field, is building derrick for a wildcat on a 5,000-acre block he recently acquired. The first test is on the Fred Pedigrew tract.

Roanoke Prospect

On the Roanoke prospect, also in Jefferson Davis Parish, Humble Oil & Refining Co. again failed to make a well in its No. 2 DeVilbiss, which tested a sand showing oil at 8,411-23 feet, getting salt water. A previous screen test was made in sand at 8,249-62 feet, where it flowed salt water. In the test at 8,423 feet a joint of 4¾-inch screen was set on bottom with 4¾-inch liner sealed to the 7-inch casing at 8,242 feet. If a well had been completed it would have been the

deepest production on the coast as well as the opener of a new field.

New Well in Black Bayou

Shell Petroleum Corp.'s No. 17 Watkins, Black Bayou, Cameron Parish, Louisiana, flowed initially 339 bbls. in 24 hours through a twenty-four-sixty-fourths inch choke with tubing pressure of 130 pounds and casing pressure of 40 pounds.

Union Sulphur Co. has leased approximately 2,240 acres just northwest of the Sulphur Dome, Calcasieu Parish, which it controls, and is starting immediate development by moving in for No. 1 Bernard Ulruch, located 150 feet out of the SE cor. Section 9-9s-10w, which is the nearest point to the productive area of the dome. The additional block was acquired in its entirety from Bernard Ulruch and consists of Sections 18 and 19-9s-10w, Section 13-9s-11w and portions of Section 17-9s-10w.

In its field on the Sulphur Dome, Union Sulphur Co. late in the week was bringing in two additional wells in its Nos. 787 and 789 fee. No gauges are available at this time but the former well is in sand at 4,923 feet and the other at 3,075 feet.

At Cameron Meadows, Cameron Parish, Burton-Sutton Oil Co. has made location for a third well, this to be 800 feet west of No. 2 School Land, recently completed. Humble Oil & Refining Co.'s No. 4 Cameron Meadows is drilling sand at 7,012 feet, the deepest test ever drilled on this dome. No. 5 Cameron Meadows, south offset to Burton-Sutton Oil Co.'s No. 1 School Land, is rigged up.

May Open New Deep Sand

Magnolia Petroleum Co. at latest report was setting screen in its No. 4-A Watkins at Lockport, Calcasieu Parish, which test promises to open a new deep sand for the original part of the field. The sand is at 6,875-90 feet. Few tests in the old field have been taken below 6,000 feet and the main production is from sands around 4,400-4,800 feet. Deep sands, however, have been found productive in the west extension district of the field.

Turnbull and Irwin, Houston operators who recently took over a block of acreage on the Darrow Dome, Ascension Parish, Louisiana, from the Gulf Refining Co. on a "farm out" basis, are rigged up for their first test, No. 1 Community. Rio Bravo Oil Co. gave this block up several months ago after drilling several deep tests, two of which found production but failed to hold up as commercial wells. The latter company undertook the development on a 50-50 basis with the Gulf Refining Co., which company had owned the dome for a number of years previously. The dome was proved up by one of Rio Bravo's tests which drilled into salt.

Humble Oil & Refining Co. is rigging up its No. 1 Long Bell in the Dry Creek area of western Beauregard Parish. This is located on a block located along the so-called "Conroe" trend.

Showing in Grimes County

A showing of oil in Foster and associates' No. 1 Quinn on the Yarborough prospect in Grimes County created some interest but in a drill stem test only 2 fourbles of mud and 3 fourbles and 1 thribble of salt water were recovered after the tool had been open six minutes through a three-eighths inch choke. Sand was at 3,492-3,503 feet.

Extension in Greta Pool

Humble Oil & Refining Co.'s No. 1 F. F. B. Heard made a small eastward extension of the 4,400-foot sand production at Greta, Refugio County, by its completion flowing 117 bbls. daily through a three-sixteenths inch choke from sand at 4,395 feet. United Production Co. is attempting to make a producer in its No. 1 Fox Estate, which is in sand at 3,492-3,507 feet. This well not only is the farthest southwest test of the field but will open a new sand. Other tests have encountered this sand and found showings but so far all have been drilled on down to the main 4,400-foot horizon. Eighteen feet of 6⅝-inch screen has been set in the hole on bottom. On the extreme north end, Trinity Drillers' No. 1 Welder, which missed production in the 4,400-foot pay, now is drilling below 5,900 feet without a showing.

Yount Lee Oil Co.'s No. 6 Hooks, Jackson sand test in the play now going on along the south side of the old Hull Dome, flowed initially at the rate of 4,583 bbls. daily through a quarter-inch choke from a total depth of 4,583 feet.

United North & South Development Co.'s twin deep tests at Buckeye, Matagorda County, still are making hole. No. 2 Stoddard (Unit 6) at latest report was drilling sandy shale at 8,589 feet and No. 1 Sheldon (Unit 25) was down 8,496 feet.

The Superior Oil Co., J. L. Essley, vice president, announced, has purchased the Mills-Bennett interest in the Barber leases, in the Barber's Hill section, Texas. The corporation took over possession of the properties immediately.

Kansas Fields

(Continued from Page 113)

County, was abandoned after spudding about 50 feet.

DeGenther and others' No. 1 Garrison, SW cor. NE NW Section 20-25-11, started up and was drilling at 350 feet.

Mendenhall and others' No. 1 Grossarth, NE cor. NW SW Section 5-25-13, is an old well that is preparing to resume drilling. It was rigging up at 1,493 feet.

Skelly Oil Co. and Tide Water Oil Co.'s No. 26 Wick, NE cor. NW SW Section 27-22-11, was showing oil in sand at 1,912-20 feet. It was shot with 30 quarts and was cleaning out.

Pure Oil Co.'s No. 15 Winterscheid, SE cor. NE NE SW Section 6-24-14, Woodson County, was completed for 36 bbls. a day from the Mississippi lime at 1,711-28 feet. It was treated with 2,100 gallons of acid.

Sheedy and others' No. 1 Warner, NE cor. SW SW Section 21-25-14, was drilling at 1,000 feet.

Clay Petroleum Co.'s No. 3 Smith, C NE SE Section 21-29-9, an old well drilled deeper, was completed in the Burgess sand at 2,282-2,310 feet, where it started at 50 bbls. per day after a 120-quart shot.

Barker & Morgan's No. 2 Ferguson, SW cor. NE NW Section 23-30-8, swabbed 12 bbls. of oil from the Kansas City-Lansing lime at 1,889-1,900 feet. It was treated with 510 gallons of acid and no production test has been made since that time.

Hunt & Croft's No. 1 Keyser, SW cor. Section 17-30-9, was rigging up.

Scattered Developments

Mid-Kansas Oil & Gas Co.'s No. 1 J. B. Mohr, C NW Section 10-18-16w, Rush County, was spudding.

Danciger Oil & Refining Co. and others' No. 1 Roesler, SW cor. NE Section 11-18-11w, Barton County, found water in the Siliceous lime at 3,395 feet, and it was abandoned at 3,407 feet.

Youker and others' No. 3 Riffle, C NW SW Section 11-17-4, Marion County, was spudding.

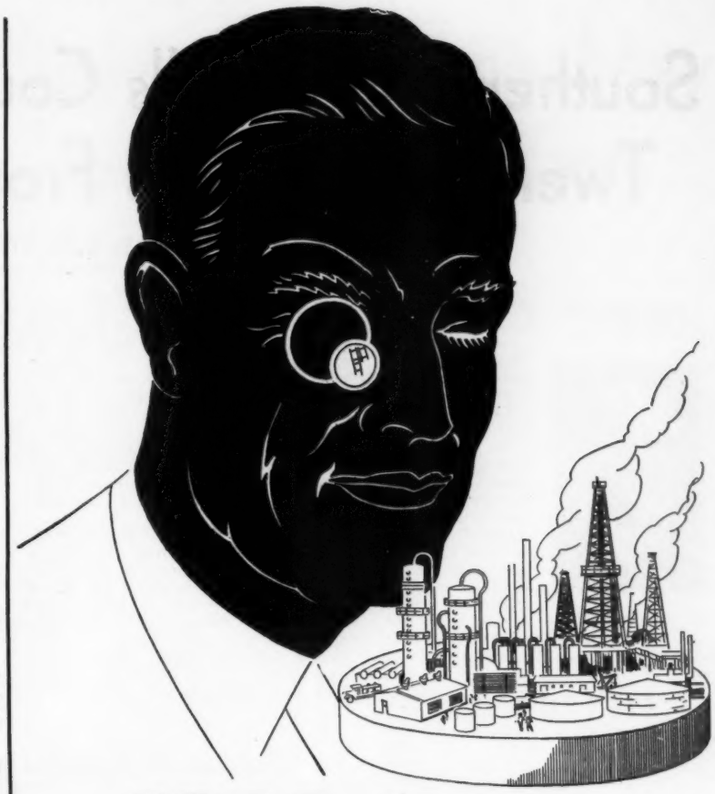
Billings and others' No. 2 Witt, SW cor. SE Section 4-14-15w, Russell County, was completed for 45 bbls. on the pump in 24 hours from the Oswald lime at 3,019-90 feet. It was treated with 1,000 gallons of acid.

Ashby and others' No. 1 Unknown, C SE Section 24-5-18w, Phillips County, was spudding.

Phillips Petroleum Co. has rig up for No. 1 Dopita, C SW SW Section 31-8-17w, Rooks County.

Minnehoma Oil Co.'s No. 4 Ferguson, NE cor. NW SW Section 3-31-8, Cowley County, is a new location.

National Refining Co.'s No. 1 Seward, NW cor. Section 7-27-7, Butler County, was abandoned after finding water in the sand at 2,265-73 feet, total depth 2,279 feet.



"Oil Industry Faces Hopeful New Year"*

*Headlines the New York Times. Our own conclusion, based on careful study and far-flung contacts with the industry, is the same. In 1934, as in other years, The First National Bank and Trust Company of Tulsa, pioneer and pacemaker in the field of oil financing, will continue to offer its credit facilities to legitimate industry of the Mid-Continent area in need of temporary funds. Officers of this institution will be found ready at all times to discuss your credit requirements with you.

THE FIRST NATIONAL BANK and TRUST COMPANY
TULSA

THE OIL BANK OF TULSA

Southern Jim Wells County Test Spraying Oil; Twenty-five Miles From Nearest Production

By B. D. STEVENSON
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Jan. 22.—Trinity Drillers' No. 1 Seeligson, in southern Jim Wells County, came in late in the week making a big volume of gas and spraying oil, and the company started at once making arrangements to build separator. It is making no water. Sand depth is 2,366-84 feet, and it is 1 mile west and half a mile south of Magnolia Petroleum Co.'s No. 2 Seeligson producing at 3,250 feet an oil well. There is no other production within about 25 miles in every direction.

Trinity Drillers plugged back from 4,032 feet and the first attempt after plugging back tested some gas pressure and water broke in, necessitating delay while another cement job was being done. Pressure is 1,000 pounds on the casing and 700 on the tubing with the well flowing through seven-sixteenths inch choke. Magnolia's No. 2 Seeligson came in for about 100 bbls. daily and was completed about the middle of last year. A short line was laid to the railroad about 3 miles east and the oil has been loaded out at intervals and shipped by rail. The Trinity test is the first that has been drilled there since and it failed to get production at the sand depth of the Magnolia well.

One of the features of the Trinity test was the number of sands found. There were several and of good thickness and with some encouraging showings leading to the supposition that some of these sands may also pay off if a test is drilled higher up on the structure.

New Test in Duval County

On the same day that the Trinity was completed the Buffalo-Texas Drilling Syndicate, Inc., started building derrick 3½ miles southwest in Duval County on the Escobar 930-acre tract in the Francisco Survey, 700 varas from the west line and 1,000 varas from the north line of the tract. E. T. Burton, manager of the Carolina-Texas Oil & Gas Co., at the time when it drilled the discovery well of the Carolina-Texas Field in Webb County, is manager of the Buffalo-Texas, and Bertrand DeGraffe, who made the location for the discovery Carolina-Texas well, made that for the No. 1 Escobar in Duval. Dentler, who built the derrick, and Lloyd Brown, who drilled the Carolina-Texas discovery well, are performing for No. 1 Escobar. It is the first time the four have been together since, and it is just 13 years since.

North Government Wells

North Government Wells Field is widening out on both sides and Magnolia is extending it north. At one point now from Sun Oil Co.'s No. 21 Weiderkehr on the west to Humble's No. 29 Hahl or the east it counts 11 wells wide or 6,600 feet, and that is the widest point, but Humble has made location for No. 31 Hahl, 660 feet east of No. 29, and Sun Oil Co. is making 20 more locations in Survey No. 359 on the west, most of which must of necessity be west of production.

Sun Oil Co.'s No. 21 Weiderkehr, on the extreme west, is in and flowing but has not been gauged, and Humble's No. 29 Hahl, on the extreme east, is credited with 40 bbls. hourly, which is a good average well or better. They are all pinched to the allowable of the field after being gauged. One of Sun locations, No. 26 Weiderkehr, is half way between the North Government Wells Pool on the east and the Extension Pool on the west, being about half a mile from either, and in a territory not proven as to the Government Wells sand but proven as to gas production in the Cole sand at a little below 1,500 feet.

North of the North Government Wells Field 3 miles, O. W. Killam's No. 3-A Wood-Welder went into a sand at 2,065 feet the past week and tested 150 feet of oil, but decided to keep on coring. No. 3 Wood-Welder, 100 feet west, got a showing a little below that and lost the hole while trying to set casing. There is more than one body of sand in the Government Wells horizon and no positive identification of this in the Killam well, but the northernmost producers of the North Government Wells Pool get the sand at around 2,300 feet and less.

During the week Texas Co.'s No. 1 Rodriguez, in Survey No. 212, 1½ miles southeast of Killam's No. 3-A Wood-Welder, half mile east of DeSoto's gas and oil well in Survey No. 211 and 3 miles northeast of the nearest production in the North Government Wells Field, was coring at 1,520 feet for the Cole sand and from this time on this test will be of especial interest since the DeSoto wells in Survey No. 211, one of them a 20-bbl. oil well and the other a gas well in Government Wells sand at 2,165 feet, seem to indicate the possibilities of another field.

Wildcat Developments

Developments among the wildcats in the Government Wells play of most importance is a showing of oil in Lefevre & Spice's No. 1 Hagist in Section 17, about 4 miles north of the Eagle Hill Pool, in the Cole sand which was running high. It topped the sand at 1,247 feet and had 21 feet down to 1,268 feet. The core showed oil but it tested salt water. Elevations allowed for, it was running 165 feet higher than the Boysen well, 1¼ miles east and half mile north, and 136 feet higher than the Trinity Drillers' No. 1 Hagist, 2 miles south. It is running pretty high to indicate possibilities of a Cole sand pool a little to the northwest and a test will likely be drilled in that direction after No. 1 has gone to the lower sands.

This is the third Hagist ranch test to get showings sufficient to cause the drilling of additional wells, and Paul C. Teas is now starting his No. 4 Hagist in Survey 187, 3,500 feet northwest of his No. 1 and 3 miles northwest of Lefevre & Spice.

Hidalgo County

Derrick was being erected late in the week for a test 1,800 feet west of Chancellor & Hall's No. 1 Garcia in southwestern Hidalgo. No. 1 Garcia, failing to get production at 3,070 feet, where it held the attention of the industry for two months waiting for a test, will continue to contract depth at 4,000 feet, and Weekly and McGinley are starting a new test 1,800 feet west of it.

Jim Hogg County

Clark & Cowden Drilling Co. is starting another test in northwestern Jim Hogg County northeast of the Randado Pool and southeast of the Henne, Winch & Fariss. More than a year ago they completed a gas well there in wildcat territory but had trouble getting it completed. One or two tests drilled later failed to locate the pool and now they have made location for No. 3 Vela, 985 feet from the east line and 2,762 feet from the south line of Survey No. 588 in El Peyote grant. They are rigging up.

In southwestern Jim Hogg County, A. W. Majors has made location for No. 1 M. Guerra & Son, 2,444 feet from the west line and 3,698 feet from the north line of Survey No. 639. This is northwest of the Cuevitas Pool in northwestern Starr County about 3½ miles and in about the direction to pick up the Cuevitas Pool sand at around the same depth a little below 2,100 feet.

New Starr County Pool

Another shallow pool is coming into existence in Starr County 5 miles east and 6 miles north of Rio Grande City. Goodwin & Yantis have completed No. 3 Kelsey Bass at about 700 feet for a small oil well of a few barrels daily and have completed No. 4 Kelsey Bass at 690 feet for an estimated 5,000,000 feet of gas daily. They are starting another test.

These tests are on the north end of Porcion No. 86 of the jurisdiction of Camargo and are about 2½ miles northwest of the Jeffries-Lambeth 2,450-foot gas well on Starr County Cattle Co. land completed some months ago and not followed by further development.

Balcones Fault

Bexar Petroleum Co.'s No. 1 Houston, in central Wilson County, which ran low on the chalk, has been running high on every formation below the chalk and about 30 feet high on the Del Rio. Late in the week it was coring in Georgetown at 5,208 feet and expecting at any minute to get the Edwards.

Wildcat Operations in Southwest Texas

Week Ending January 20

Company, well, farm name, section and block—	Remarks:
BASTROP COUNTY	
Humble O. & R. Co.'s No. 1 Ollie Carter, 951 ft. SW from NE cor. and 330 ft. NW from SE line of 117.36-ac. tract near Elgin	Moving in rig.
Sun Oil Co.'s No. 1 Page-Probst, 330 ft. from E line, 330 ft. from S line of 103-ac. tract in Andrew Mays Sur.	Spudded in.
BELL COUNTY	
Gus Winston et al's No. 1 Warrick, 100 ft. N of James Scroggins' No. 1 Warrick, in Elijah Ingram Sur.	**T.D. 2,000 ft.; fishing.**
BEXAR COUNTY	
C. I. Albertson's No. 2 C. Hoke estate, 675 ft. from E line, 260 ft. N of Medina River in Jose Maria Barrera Sur.	T.D. 1,134 ft.; S.D.
A. M. Blume's No. 2 Louis Ridder, approximately 2,350 ft. N of R.R., and 700 ft. E of W line of J. M. Baerera Sur. No. 58	T.D. 680 ft.; standing.
Cosby et al's No. 1 Ruiz, SE cor. of 82-ac. tract in F. Rowland Sur. No. 43	T.D. 1,180 ft.; drlg.
S. W. Forrester's No. 1 Appelt, 160 ft. E of Corpus Christi Road, 1,666 ft. S of N line of tract in M. Urregias Sur.	T.D. 1,330 ft.; drlg. shale.
Thos. Gorton's No. 1 Edward Jackel, 600 ft. from N line, 800 ft. from E line of tract in J. Ward Sur.	T.D. 80 ft.; standing.
George L. O'Neill's No. 1 Neimann in Juan Montez Sur. No. 6	T.D. 974 ft.; preparing to deepen.
J. W. Johnson's No. 1 Willow Springs, 150 ft. from N and W lines of lease in B. Munoz Sur. No. 151	T.D. 2,021 ft.; standing.
Fred A. Perrenot's No. 1 Russell, 750 varas from NE line, 54 varas from NW line of 500-ac. tract in Rodriquez Sur.	T.D. 1,315 ft.; standing.
N. H. Price's No. 1 Barragas, 150 ft. from S and E lines of 60-ac. tract	T.D. 419 ft.; S.D.
N. S. Powell's No. 1 M. Sanner, 400 ft. from E line, 5,280 ft. from N line of 128-ac. tract in Ruiz Sur. No. 47	T.D. 135 ft.; drlg.
C. A. Smith's No. 1 Henry Lamb, 750 ft. from N and E lines of Lamb farm, in de la Garza grant	T.D. 822 ft.; drlg.
W. L. Umburn's No. 1 Otto Jackel, 150 ft. from S and E lines of Jackel 391-ac. tract in Samuel McCulloch Sur. No. 54	T.D. 890 ft.; standing.
BLANCO COUNTY	
Blanco Development Co.'s (McGee) No. 1 A. J. Dittmar, 1,320 ft. from S line, 150 ft. from W line of George Evans Sur. No. 58, 4 miles NW of Johnson City	T.D. 1,305 ft.; P.B. to 1,050 ft.
Rogers et al's (formerly Pedernales Pet. Corp.) No. 1 Lester, 550 ft. from N line, 6,100 ft. from W line of Antonio Bendrand Sur.	T.D. 1,200 ft.; drlg.
CALDWELL COUNTY	
S. S. Cargill's No. 2 Damereau, 150 ft. from W line, 450 ft. from N line of D. Cooper Sur.	Location.
Whitfield et al's No. 1 Wilms, 160 ft. from S line, 3,100 ft. from E line of 165-ac. tract in Cornelius Grenshaw Sur.	T.D. 250 ft.; drlg.
COMAL COUNTY	
Theo. Hicks et al's No. 1 Gruene, 435 ft. from NE line, 414 ft. from NW line of H. Foster Sur. No. 34, 3 mi. NE from New Braunfels	Spudded and stancing.
DEWITT COUNTY	
Bunte, Inc.'s No. 1 Hilgartner, 330 ft. out of SE cor. of W 200 acres of Hilgartner's 415-ac. tract in Caleb Wilburn Sur.	T.D. 4,107 ft.; abd.
Humble O. & R. Co.'s No. 1 Kuester, 4,100 ft. from N line, 466 ft. from E line of lease in S.A.&M.G. R.R. Sur. No. 7	Moving in.
DUVAL COUNTY	
Buffalo-Texas Drlg. Synd., Inc.'s No. 1 Escobar, 700 varas from W line, 1,000 varas from N line of 930-ac. tract in Francisco grant	Derrick.
Eaton et al's No. 1 Herbst, 1,650 ft. from E line, 330 ft. from S line in S.A.&M.G. Sur. No. 71	T.D. 2,785 ft.; drlg.
O. W. Killam's No. 3-A Wood-Welder, 100 ft. N of No. 3, 6,223 ft. from S line and 200 ft. from W line of Sur. No. 102	T.D. 2,065 ft.; drlg.
W. A. Smith's No. 1 Holzapfel, west central part of lease, 900 ft. W of NE cor. of Sur. 344 and 189 ft. from N line of Sur. No. 42	T.D. 2,208 ft; abd.; contract depth.

(Continued on Page 141)

Dearth of New Prolific Fields in California May Stabilize Conditions There Later This Year

By L. P. STOCKMAN
Staff Correspondent, California Fields

LOS ANGELES, Calif., Jan. 22.—The relatively small amount of wildcat exploratory work undertaken in California during the past few years and failure to discover new prolific fields is expected to become a stabilizing factor later this year. This is particularly true in view of the probability that tideland exploitation in the Seventeenth Street town lot area of the Huntington Beach Field will soon cease to be a factor of primary consequence. The tideland area has already shown definite symptoms of overdevelopment and evidence that peak production was reached late in November, 1933.

Crooked hole drilling in the Huntington town lot area proved a disturbing factor in 1933 but with the pumping stage not far off generally improved conditions are in sight. Artificial methods to stimulate production have not yet been applied generally in the Huntington Beach town lot area, although several wells are expected to be put on gas lift in the near future. The injection of natural gas to stimulate production may prove especially beneficial in view of the deviation from the vertical of wells bottomed beneath state tidelands.

Some marketers predict a demand for refining crude substantially in excess of production before the close of summer, but this hardly seems justified unless the allowable production of the State is maintained at an abnormally low figure. There will undoubtedly be a tightening up due to normal declines expected to occur principally in the Long Beach, Santa Fe Springs and Huntington Beach Fields, but if there is any actual shortage of refining crude in California it will be due primarily to artificial restrictions. It is safe to say, however, that spot oil and distress crude produced in violation of curtailment will not be as plentiful as during the past six months.

Curtailment Factor

The only likelihood of a shortage in refining crude in California during the next year or two lies in the allowable daily production being reduced severely. Kettleman Hills alone could easily produce 50 per cent of the State's normal demand for crude oil. In addition to this field, lower virgin zones exist in the Elwood and Inglewood Fields at relatively shallow depths and are easily accessible. Producers and refiners foresee a larger demand for refining crude in California during 1934 but there are sufficient reserves available adequately to provide enough to meet refinery requirements. There may be some additional drilling, depending upon the type of crude oil desired and the area in which the demand exists.

In the Mountain View Field operators express alarm over the apparent discrimination against that field. In the Inglewood and Montebello Fields operators are making a concerted attempt to formulate a unit plan of development or some other acceptable method whereby exploitation of lower zones may be retarded or at least prevented from demoralizing conditions on the Pacific Coast. Operators in the Inglewood Field have been sitting tight for several years and therefore can be expected to maintain an equilibrium for another year. It is true, nevertheless, that certain interests in Inglewood Field are desirous of developing the second zone. There are possibly several additional productive zones below present production in the Inglewood Field.

Montebello Deep Zone

Operators in the Montebello Field of Los Angeles Basin, where the Universal Consolidated discovered a new deep zone late in 1933, have not yet been able to agree on a definite development program despite a series of meetings called for that specific purpose. Several new wells have already been started in the Montebello Field and additional drilling is expected to get under way in the immediate future. The Universal Consolidated is drilling two wells and the Texas Co. one. In addition, the Texas is rigging up rotary drilling equipment on No. 12 Baldwin and the Standard is preparing to spud in No. 18 Temple and No. 73 Baldwin. The St. Helens Petroleum and Union Oil Co. will probably also start one or more projected deep tests in the near future unless a general agreement is reached shortly.

The inability of operators to agree on a definite drilling program may lead to litigation, as Secretary Ickes has decreed that no new field or pool shall be given a daily quota except in the event that old fields decline to a point to warrant such action. Umpire Pemberton has given the new deep zone at Montebello a quota of 270 bbls. per day for January, 1934. This allowance appears to be in direct opposition to the principles set out by Secretary Ickes that no new field or pool would be given a daily quota until operators had agreed on a definite development program and this program had been approved by proper authorities. As operators in the Montebello Field have not yet unanimously agreed on the development program, operators in some of the other fields say they are at a loss to explain this apparent discrimination.

Flow Test Off

The open flow test originally scheduled to be started in the Huntington Beach Field January 15 was indefinitely postponed due to protests of pipe line companies and the operators involved. When the flow test was originally proposed the town lot area had a rated potential daily production of 109,800 bbls. and an allowable of 18,420 bbls. per day. The allowable could not be reduced much even though the field failed to attain its rated potential, and operators in the past have failed to absorb the overproduction chalked up during the flow tests. If the Huntington Beach Field continues to decline at the present rate, no flow test will be needed to determine its potential within a few months.

An early adjudication of the litigation involving tideland exploitation in the Seventeenth Street town lot area of the Huntington Beach Field is predicted. State officials have reached an agreement with the Termo Oil Co. and according to Webb Shadle, attorney for the Division of State Lands, will make similar agreements with other operators involved. The Termo Oil Co. has agreed to pay the State $12,500 to cover past royalties and 12½ per cent royalty on all oil and gas produced in the future. Litigation against the company has been suspended because of the agreement and the Termo will be permitted to resume production activities on all three of its wells in the town lot area.

Hearing on the application by the Government for a temporary injunction restraining the Wilshire Oil Co. and its subsidiaries from violating the curtailment program has been postponed until February 12 due to the absence of U. S. District Judge McCormick, who is sitting in the U. S. District Court at San Diego. This litigation is the Government's first step in seeking to compel operators to observe the code of fair competition for the oil industry. The second step was taken recently when the Federal grand jury returned an indictment against A. L. Pautz, owner of a service station, accusing him of violating the petroleum code. If the Federal Government is successful in these two suits, sufficient precedence will have been established to make future action a mere formality.

Ask Quota Change

The Central Committee of California Oil Producers, Umpire Pemberton and field committee have petitioned Secretary Ickes to revise California's daily quota, which was reduced to 437,600 bbls. per day for the first three months of 1934. The committee says operators will rigidly adhere to 450,000 bbls. per day but cannot operate economically at the new allowable of 437,600 bbls. State production of crude oil has been substantially in excess of 450,000 bbls. per day during the first half of the current month. Theoretically, reduction of the State's allowable to 437,600 bbls. per day should be productive of improved conditions. Actually, it has encouraged the movement of hot oil and has consequently caused a sympathetic weakening in the gasoline price structure. When the allowable quota of the State was set at 450,000 bbls. per day, crude oil production was more stable.

The petition to increase California's daily quota from 437,600 bbls. to 450,000 bbls. per day has been unanimously endorsed by both large and small producers who realize that effective enforcement at 450,000 bbls. is more beneficial than ineffective enforcement at the lower quota. The relatively small quantity of hot oil has proven a disturbing factor in the refined oil market during the past several weeks. In addition to forwarding a petition to Secretary Ickes, the Central Proration Committee contemplates requesting the intervention of L. P. St. Clair, general chairman of the sixth regional committee, to conduct an investigation and submit his recommendations to the Petroleum Administrative Board.

Huntington Beach

W. E. McCaslin, who has been endeavoring to finish No. 17 Transport in the Huntington Beach Field as a commercial producer at frequent intervals during the past few years, cleaned out the hole to 8,300 feet and then shot it with 350 quarts of nitroglycerin at 7,773-8,300 feet. Following the shot, the well flowed by short heads and produced approximately 150 bbls. of 33.9 gravity oil during the next 24 hours. A few days later the well was swabbing 200 bbls. per day but it failed to show sufficient kick to result in a natural flow. Preparations are being made to place No. 17 Transport on the beam and the success of the undertaking will be watched with interest.

This well is of special importance for two reasons, the relatively high gravity oil produced and the fact that the depth of the well tends to indicate that McCaslin may possibly have encountered a small accumulation of high gravity oil below present production. No. 17 Transport, bottomed at 8,365 feet, is the deepest well drilled in the Seventeenth Street town lot area up to the present time. It is not common practice to shoot wells in California to break up the formation.

The subsurface survey conducted by Alexander Anderson on C. W. Camp's No. 1-A Laughlin indicated that the bottom of this hole was 850 feet out in the ocean beyond the tide line and the declination reached a maximum of 46 degrees. The Devap Corp. successfully completed No. 1 fee in the Seventeenth Street town lot area of the Huntington Beach Field in the last week and this new well was brought in flowing 1,130 bbls. from 4,720 feet. In the Santa Fe Springs Field the General Petroleum Corp. recompleted No. 15 Santa Fe doing 703 bbls. after plugging back the hole from the Meyer zone at 4,940 feet to the Bell zone at 4,700 feet.

Dominguez

The Republic Petroleum Co. added a new well to its list of producers in the Dominguez Field when No. 2 Shell-Childs was brought in flowing 705 bbls. of oil and 300,000 feet of natural gas per day. This well, originally drilled and abandoned by the Shell, was bottomed at

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	January 7		December 31			
Intercoastal-domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Fuel oil	309,234	44,176	211,596	44,514	309,234	.....
Diesel and gas oil	.....	.....	73,375	10,482	.....	.....
Gasoline	74,451	10,636	116,820	16,688	74,451	160,820
Kerosene	79,620	11,374	.....	.....	79,620	79,672
Other finished oil	.....	.....	.....	.....	.....	15,252
Foreign exports—						
Crude oil	62,870	8,981	261,725	37,389	62,870	177,149
Fuel oil	89,484	12,783	273,900	39,129	89,484	113,330
Diesel and gas oil	12,025	1,718	49,687	7,098	12,025	74,779
Gasoline	150,208	21,458	.....	.....	150,208	91,816
Kerosene	37,388	5,341	.....	.....	37,388	.....
Coastwise-domestic—						
Crude oil	.....	.....	.....	.....	.....	255,755
Fuel oil	237,918	33,988	122,425	17,489	237,918	129,580
Diesel and gas oil	.....	.....	12,070	1,724	.....	39,704
Gasoline	239,231	34,176	60,265	8,609	239,231	274,907
Kerosene	.....	.....	726	104	.....	12,706

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-Domestic—						
Kerosene	.....	.....	.....	.....	.....	154,070
Foreign exports—						
Crude oil	76,255	10,894	.....	.....	76,255	.....
Fuel oil	60,375	8,625	.....	.....	60,375	.....
Diesel and gas oil	795	114	42,081	6,012	795	.....
Gasoline	63,315	9,045	91,964	13,138	63,315	.....
Kerosene	10,960	1,566	71,375	10,196	10,960	.....
Lubricants	14,464	2,066	11,416	1,631	14,464	.....
Coastwise-domestic—						
Fuel oil	.....	.....	140,743	20,106	.....	23,450
Diesel and gas oil	12,876	1,839	.....	.....	12,876	.....
Gasoline	14,931	2,133	14,697	2,100	14,931	61,444
Kerosene	.....	.....	.....	.....	.....	3,753

4,490 feet and finished with a 7-inch liner carrying 164 feet of perforated landed at 4,490 feet with a packer. The Republic, by exceptionally careful drilling, has finished three wells on the 40-acre Childs lease in the Dominguez Field and is expected to undertake additional development in the immediate future. The Shell Oil Co. has recompleted No. 23 Reyes in this field after undertaking corrective work, and the well was returned to production flowing 540 bbls. of oil and 625,000 feet of natural gas per day from 4,486 feet after the hole had been finished with a 6⅝-inch liner, including 250 feet of perforated. The perforated was landed at 4,476 feet and the hole cemented through perforations at 4,225 feet. The Mutual Oil Co. is making preparations to resume drilling operations on No. 1 Carpenter in the southern part of the Dominguez Field.

In the West Coyote Field of Los Angeles Basin, the Standard Oil Co. is running three strings of tools on the Murphy-Coyote and Emery leases and locations staked for three additional wells. Drilling operations in this field are not being undertaken for the specific purpose of stimulating production but they reflect the desire of the company to keep its drilling crews busy and at the same time build up a reserve to meet future requirements. In the East Coyote Field the Bartholomae Oil Corp. has landed a 4½-inch liner in No. 1 Stern and is rigging up preparatory to putting the well on the beam. T. T. Hudson is completing preparations to spud in a projected deep test on the Sentous property in the Inglewood Field of Los Angeles Basin and work on this hole will be watched with interest. Litigation is possible if an attempt is made to whipstock the well out under the productive limits of the field.

The Union Oil Co. is expected to complete No. 4 A. & P. in the Breen zone at Richfield within the next fortnight. The water string has been landed and cemented. The Continental Oil Co. successfully recovered from the mechanical trouble which delayed progress in No. 32 Bixby, a new well in the Seal Beach Field, and has landed a string of 11¾-inch casing at 4,590 feet.

Mountain View

Although several drilling wells in the Mountain View Field of Kern County made normal footage during the past week and are consequently nearing completion, interest in the field centers in the amount of new work scheduled to be undertaken in the immediate future. The A. T. Jergins Trust is rigging up two additional wells, the Mohawk Petroleum Co. one, and locations have been staked by the Severns Drilling Co., Petrol Well Producing Co. and Standard Oil Co. Within another 30 days the Mountain View Field will have several additional drilling projects under way, notwithstanding the fact that producing wells will be allowed to produce a relatively few barrels per day.

The Union Oil Co., which is drilling an outpost in the extreme western part of the Mountain View Field, is still held up with water trouble at 5,647 feet and the status of this project is conjectural. The Union has cored 34 feet of exceptionally well saturated oil sand but has been unable to overcome water trouble notwithstanding three cement jobs.

The North Kettleman Oil & Gas Co. has suspended drilling operations in No. 1 Lillis-Welsh, an outpost located in the extreme western end of the Kettleman North Dome Field, due to a complicated mechanical condition. Before drilling operations are resumed, sponsors will carefully consider the possibility of salvaging the hole. The original fish, which was left in the hole by the premature explosion of a shot, has apparently slipped back into the new hole and presents a difficult problem. As the situation stands, the North Kettleman Oil & Gas Co. has 9,965 feet of hole and may possibly be successful in whipstocking the bit sufficiently far enough to miss the original hole bottomed at 10,944 feet. In the redrilling job the company was unfortunate enough to practically parallel the first hole and then drill into the original fish.

Drilling operations in the Kettleman North Dome Field, judging by the number of new locations staked, will probably continue at a normal rate during 1934, despite the fact that the field already has a potential daily production of 341,500 bbls.

Lost Hills-Belridge

The General Petroleum has recemented the 8⅝-inch water string in No. 1 Berry in the South Belridge Field of Kern County, and is expected to resume drilling operations at 9,972 feet in the immediate future. The Union Oil Co. spudded in No. 18 Belridge in the North Belridge Field and a string of 18⅝-inch surface pipe has been landed and cemented. The Associated Oil Co. passed through a zone of high pressure water in No. 1 Williamson in the Lost Hills Field at 6,981 feet and while the crew was obliged to use 115-pound mud, fairly good footage was made during the period.

No. 1 Williamson has passed the 7,000-foot level and is drilling ahead in a hard shale showing medium to fair cuts. The Western Gulf Oil Co. is expected to complete well No. 13 on K. C. L. Lease 8 in the Fruitvale Field some time within the next few days as the 7-inch water string has been landed and cemented at 3,332 feet. In the meantime the company is building rig for No. 1 Pugh, a new well to be drilled in Section 21-29-27. The Ohio Oil Co. is nearing the 4,900-foot level in No. 1 K. C. L., a new well under way in the extreme eastern end of the Buena Vista Lake in Kern County.

Elwood

Drilling operations in the Elwood Field of Santa Barbara County are proceed-

(Continued on Page 127)

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
General Pet., No. 9 Capitan, Santa Barbara Co.	32- 5-30	rig	suspended
General Pet., No. 7 Capitan, Santa Barbara Co.	32- 5-30	1,463	plug 1,451
Shell Oil Co., No. 2 Capitan, Santa Barbara Co.	32- 5-30	....	material
Lincoln Drlg. Co., No. 3 Summerland, Santa Barbara Co.	21- 4-26	2,603	suspended
Dietzmann, J., No. 1 Summerland, Santa Barbara Co.	16- 4-26	3,749	cemented
Meganos Oil Co., No. 1 Purisima, Santa Barbara Co.	28- 8-34	3,000	suspended
Barnsdall-Rio Grande, No. 8 Doty Elwood, S. Barbara Co.	15- 4-29	4,868	redrilling
Signal Oil & Gas Co., No. 2 Elwood, Santa Barbara Co.	tideland	5,016	redrilling
Cuyama Oil Co., No. 1 Cuyama, Santa Barbara Co.	12-10-27	3,950	suspended
Indian Pet., No. 1 Shude, Ventura Co.	tideland	4,150	pump 120 B/D
Richfield, No. 3 Rincon fee, Ventura Co.	17- 3-24	2,557	will deepen
Woodrow Pet., No. 1 Rincon, Ventura Co.	4- 3-24	7,612	suspended
Hancock Oil Co., No. 1 Fillmore, Ventura Co.	13- 4-19	3,357	recemented
Oil Ridge Oil Co., No. 1 Fillmore, Ventura Co.	1- 4-19	360	sd. sh. drilling
Driggs Pet., No. 1 South Mountain, Ventura Co.	17- 3-20	4,270	plug 4,162
Kneiper & Atha, No. 1 Bardsdale, Ventura Co.	7- 3-19	1,602	hd. sd. drilling
Williamson & Donaher, No. 1 Simi, Ventura Co.	36- 3-18	790	suspended
Dabney, H. R., No. 1 Simi, Ventura Co.	22- 2-18	1,200	suspended
Midlands Pet., No. 1 Ojai, Ventura Co.	9- 3-23	7,830	cleaning out
Laing & Jacobs, No. 1 Shiells, Ventura Co.	32- 4-19	314	rd. sh. drilling
Wilshire Oil Co., No. 1 Sulphur Mountain, Ventura Co.	20- 4-21	2,198	suspended
Kirk, W. A., No. 1 Santa Paula, Ventura Co.	21- 4-21	1,491	br. sh. drilling
Mosher, J. W., No. 1 Santa Paula, Ventura Co.	22- 4-21	1,800	br. sh. drilling
Las Posas Pet., No. 1 Las Posas, Ventura Co.	22- 3-20	5,870	gr. sd. drilling
International Oil Developers, No. 1 Conejo, Ventura Co.	33- 2-20	2,950	hd. sd. drilling
Hub Pet. Co., No. 1 Gould Hills, Kern Co.	22-29-21	6,840	suspended
Shell Oil Co., No. 1 Gould Hills, Kern Co.	21-29-21	1,053	sd. sh. drilling
Standard Oil Co., No. 1 McKittrick, Kern Co.	15-30-22	....	material
Casa Mira Oil Co., No. 1 Belridge, Kern Co.	29-29-20	4,982	suspended
General Pet., No. 1 Belridge, Kern Co.	30-29-21	9,972	recemented
Union Oil Co., No. 18 Belridge, Kern Co.	36-27-20	1,173	sd. sh. drilling
Cumberland Oil Co., No. 2 Devils Den, Kern Co.	17-26-18	3,270	suspended
Hanna, Tom, No. 1 Devils Den, Kern Co.	25-25-18	3,516	suspended
Pyramid Hills Oil Co., No. 1 Devils Den, Kern Co.	24-25-18	4,140	suspended
Fowler, F., No. 1 Blackwell Corner, Kern Co.	15-26-19	3,170	suspended
Associated, No. 1 Lost Hills, Kern Co.	2-26-20	6,974	sd. sh. drilling
Howells Bros., No. 1 Round Mountain, Kern Co.	32-28-29	1,716	O. S. drilling
Keno Pet. Co., No. 1 Lerdo, Kern Co.	14-29-27	4,531	suspended
Bankline Oil Co., No. 1 Kern Front, Kern Co.	28-28-27	2,860	gr. sd. drilling
Carribou Record Oil Co., No. 1 Kern Front, Kern Co.	11-28-27	1,423	hd. sh. drilling
Shafter Oil Co., No. 1 Shafter, Kern Co.	8-28-25	rig	rigging up
Ohio Oil Co., No. 1 Buena Vista Lake, Kern Co.	31-31-26	4,880	sd. sh. drilling
Union Oil Co., No. 1 Union Avenue, Kern Co.	15-30-28	5,647	recemented
Alta Oil Co., No. 1 Union Avenue, Kern Co.	6-30-28	5,500	sd. sh. drilling
Hogan Pet. Co., No. 1 Shell Mountain View, Kern Co.	29-30-29	5,910	cleaning out
Hogan Pet. Co., No. 2 Shell Mountain View, Kern Co.	29-30-29	rig	rigging up
Hogan Pet. Co., No. 3 Mountain View, Kern Co.	29-30-29	5,571	sd. sh. drilling
Bankline Oil Co., No. 1 Mountain View, Kern Co.	4-31-29	6,088	suspended
Barnsdall Oil Co., No. 1 Mountain View, Kern Co.	31-30-29	6,444	suspended
Labadie, E. L., No. 1 Mountain View, Kern Co.	29-30-29	5,140	sd. sh. drilling
Mohawk Pet., No. 4 Mountain View, Kern Co.	30-30-29	5,676	O. S. drilling
Standard, No. 1 Mountain View, Kern Co.	19-30-29	....	location
Comanche Oil Co., No. 1 Comanche, Kern Co.	15-32-29	1,476	sd. sh. drilling
Badger Oil Co., No. 1 Wheeler Ridge, Kern Co.	31-11-19	4,976	suspended
Gatton & Luethe, No. 1 Madera, Madera Co.	32-10-17	3,020	suspended
Russ Oil Synd., No. 1 Kingsburg, Fresno Co.	20-12-11	3,900	plug 3,620
Bergman, Harry, No. 1 Kingsburg, Fresno Co.	12-12-11	4,471	sd. sh. drilling
Graham & Loftus, No. 1 Rainin City, Fresno Co.	29-15-18	5,906	suspended
Emerich Oil Co., No. 1 Mendota, Fresno Co.	35-13-13	3,871	sd. sh. drilling
Western Gulf, No. 1 S. P., Fresno Co.	3-17-15	7,650	sd. sh. drilling
Hogan Pet. Co., No. 1 Joaquin Ridge, Fresno Co.	28-20-16	6,605	suspended
Kent & McDonald, No. 1 Carrizo Plains, S. Luis Obispo Co.	3-22-22	3,330	suspended
Farrel Pet., Well No. 1, San Luis Obispo Co.	18-31-12	1,095	cleaning out
Willet Oil Co., No. 1 Cholame, San Luis Obispo Co.	10-25-15	rig	rigged up
Guess, E. B., No. 1 Corcoran, Kings Co.	7-21-21	6,197	suspended
Knudsen & Schmidt, No. 1 Reef Ridge, Kings Co.	36-23-17	6,873	suspended
Magee & Stone, No. 2 Alpaugh, Kings Co.	33-21-22	3,149	suspended
Douglas, J. M., Well No. 1, Monterey Co.	36-22-9	714	sd. sh. drilling
Na-Pa Oil Co., No. 1 Griffith, Napa Co.	7- 8-3	3,760	suspended
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	5- 2-10	4,760	hd. sh. drilling
Pacific Northern Oil Co., No. 1 Guinda, Yolo County	23-12-3	5,890	hd. sd. drilling
Buttes Oilfields Co., No. 1 Marysville, Sutter Co.	35-16-1	2,731	gas—shut in
Buttes Oilfields Co., No. 2 Marysville, Sutter Co.	35-16-1	4,136	Andesite—drl.
Tehama Pet. Co., Well No. 1, Glenn Co.	4-22-5	4,696	suspended
Milham Exploration Co., No. 1 Tracy, San Joaquin Co.	5- 4-5	rig	rigging up
Orland Oil Synd., No. 1 Osland, Tehama Co.	31-23-3	3,840	testing

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Palm Ridge Oil Co., No. 1 Palms, Los Angeles Co.	2- 2-15	7,150	suspended
Clayton, G. L., No. 1 Clearwater, Los Angeles Co.	31- 3-12	1,271	sd. sh. drilling
Pacific Gulf, No. 1 Athens, Los Angeles Co.	19- 3-13	6,024	suspended
Pacific Dev. Co., No. 1 Watts, Los Angeles Co.	16- 3-13	3,902	suspended
Mutual Oil Co., No. 1 Dominguez, Los Angeles Co.	3- 4-13	1,080	repair boilers
Kelly & Son, No. 1 Torrance, Los Angeles Co.	7- 4-13	5,340	sd. sh. drilling
Wehrman, J. K., No. 1 San Pedro, Los Angeles Co.	14- 5-14	1,301	schist—drilling
Nudson, T. T., No. 1 Inglewood, Los Angeles Co.	17- 2-14	rig	rigged up
Oakes & Mead, No. 1 Lyndwood, Los Angeles Co.	31- 2-12	4,940	suspended
Community Oil Co., No. 1 Montebello, Los Angeles Co.	34- 1-11	5,490	cemented
Universal Consd., No. 2 Montebello, Los Angeles Co.	5- 2-11	5,770	sd. sh drilling
Universal Consd., No. 3 Montebello, Los Angeles Co.	5- 2-11	5,682	sd. sh. drilling
Texas Co., No. 1 Montebello, Los Angeles Co.	6- 2-11	1,729	sd. sh. drilling
Standard, No. 1 Montebello deep, Los Angeles Co.	6- 2-11	rig	rigging up
Midfield Oil Co., No. 1 Pico, Los Angeles Co.	19- 2-11	2,016	cemented
Kyle, W. S., No. 1 Pico, Los Angeles Co.	7- 2-11	....	material
Rex Anglin Dev. Co., No. 1 Los Nietos, Los Angeles Co.	29- 2-11	rig	rigging up
Signal Pet., No. 1 Puente, Los Angeles Co.	14- 2-10	4,903	cleaning out
Eldorado Pet., No. 1 Puente, Los Angeles Co.	30- 2-9	2,890	suspended
Barstow Oil Co., No. 1 Saugus, Los Angeles Co.	35- 5-16	2,136	suspended
Alpha Oil Co., No. 1 Calabasas, Los Angeles Co.	22- 1-18	1,317	suspended
Marble, Willard, No. 1 Van Nuys, Los Angeles Co.	6- 2-16	2,760	suspended
Black Eagle Oil Co., No. 1 Huntington, Orange Co.	tideland	3,101	hd. sd. drilling
Nuoil Co., No. 1 Newport, Orange Co.	29- 6-10	5,594	sd. sh. drilling
Recovery Oil Co., No. 1 Sunset Beach, Orange Co.	16- 5-11	3,400	suspended
Superior Oil Co., No. 1 Sunset Beach, Orange Co.	19- 5-11	rig	rigging up
Placentia Dev. Co., No. 1 Placentia, Orange Co.	31- 3-9	3,905	hd. sh. drilling
Rubens, Sy., No. 1 Atwood, Orange Co.	19- 3-9	3,368	pump water
Bardeen Pet., No. 1 Coyote, Orange Co.	13- 3-10	2,746	hd. sd. drilling
Bartholomae Oil Co., No. 1 Coyote, Orange Co.	23- 3-10	3,591	will test
Spindle Top Oil Co., No. 1 Salton Sea, Riverside Co.	25- 7-10	3,590	suspended
Great American Pet., No. 1 Chino, San Bernardino Co.	18- 2-8	2,645	suspended
Great American Pet., No. 2 Chino, San Bernardino Co.	18- 2-8	2,600	repair rig
McCarthy, C. F., No. 1 Chino, San Bernardino Co.	14- 3-6	803	suspended
Tehama Pet., No. 1 Santa Ana Canyon, S. Bernardino Co.	33- 2-8	727	sd. sh. drilling

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Eastern Fields Had Twelve Completions; Six Oil Producers, Six Gas Wells

BY STAFF CORRESPONDENT

PITTSBURGH, Pa., Jan. 20.—Twelve wells were completed in the lower eastern fields during the week. Of these, six were producers with an initial production of 60 bbls. and six were gas wells. There were also two dry holes, one a test drilled deeper in the vicinity of the recent discovery in Washington County, Pennsylvania.

In Lost Run Pool, Clay district, Ritchie County, West Virginia, Smith and Hendershot completed another well on the Charles H. Frederick lease, so far the northern productive extremity of the Injun sand streak. It was their No. 3 and in the northern apex of that farm, and is showing for 15 bbls. a day from the Injun sand at 1,805 feet. No. 4 on this farm is drilling at about the top of the sand. North of this well, close to the western boundary, R. B. Roberts and others have reached the top of the Injun sand in a second test on the Sada McGinnis farm. The depth is 1,810 feet and the well is shut down for casing. The test on this farm north of No. 2 was dry. Road conditions in this section have rendered additional work impossible. The balance between the state allowable and present production now permits of additional exploitation.

WEST VIRGINIA

There was one additional producer completed in West Virginia in the week. Two and one-half miles due north of the Charles H. Frederick farm in Clay district, Ritchie County, and in the more northern end of that district, Lucas and Mahaney completed No. 2 on the farm mapped as the Van Martin farm but a test on part of it now called the J. F. Kelley farm. It was drilled in the Injun sand at a depth of 2,039 feet and is showing for 10 bbls. a day along with about 45,000 feet of gas. It is among settled production.

In Center district, Gilmer County, near the fair test of Hope Construction & Refining Co. on the Mary A. Stump farm, Chartiers Oil Co. drilled its No. 8 on the Baptist Home Missionary lease from the Maxon to the Berea sand. It proved to be dry.

Gas Wells

There were several fair gas wells completed. In Cabell County, C. C. Wolfe and others completed a test on the S. E. Vickers lease in Guyandotte district in the Shale at 2,906 feet, showing for about 534,000 feet a day.

In Calhoun County, on West Fork in Lee district, F. F. McIntosh completed No. 3 on the Mary E. Hays farm in the Injun sand at 1,914 feet good for 500,000 feet a day with a slight showing of oil. It is 2,000 feet south of the test on the same farm and about 400 feet from Arnoldsburg.

In Monongalia County, State Line Oil & Gas Co. completed a test on the Mary J. Straight farm in Battelle district at 3,407 feet in the Bayard sand, good for 700,000 feet a day. The Pittsburgh Coal was at 982-990 feet.

In Ritchie County, on Leatherbark Creek near the Calhoun County line in Murphy district, Dr. S. M. Prunty and others completed a test on the M. L. Bollinger farm. The total depth was 2,073 feet and the Big Injun sand at 2,047 feet. It had an oil showing in the Salt sand, 200,000 feet on gas in the Maxon sand, and about 5,000 feet in the Injun sand.

Drilling in West Virginia

In Kanawha County, on Rich Creek in Big Sandy district, Holly H. Osborne and others have started drilling No. 4 on the Goshorn heirs lease about 2,500 feet southwest of their No. 3. In the same district, Columbian Carbon Co. is drilling at 1,535 feet in No. 12 on the Queen Land Co. lease. Valley Gas Co. is fishing at 360 feet on the G. W. Harless farm in Elk district with the pin off the bit. In Poca district, Ward Gas Co. shut down at 1,650 feet to run casing on the D. W. Hunt farm.

In Wayne County, David Fox and others have made a location on the William E. Jones farm in Stonewall district. In Nichols County, G. L. Cabot reached 3,200 feet and shut down on the W. E. Smith farm in Jefferson district.

In Boone County, Pond Fork Oil & Gas Co. reached 510 feet in No. 16 on the Cole and Crane lease in Washington district. On the Federal Coal Co. tract in Sherman district, Pure Oil Co. reached 1,152 feet in No. 63 and 1,827 feet in No. 64. On the Williams Coal Co. lease in this district, the same operators are drilling at 2,942 feet, and Columbian Carbon Co. is drilling at 1,985 feet in No. 6 on the Broun-Cochran lease.

In Roane County, Guy Boggess and others have made a location on the William Stine farm in Spencer district. In this district, D. S. Fisher and others are shut down at 870 feet for casing in a second test on the Stella V. Knotts farm. In Curtis district, W. B. Heeter is drilling on the Maude Knopp and others lease and has reached 1,250 feet. Henderson Oil Co. is fishing for the tools at 1,175 feet in a second test on the F. L. Ball farm. In Geary district, Frank Finley reached 1,675 feet on the W. H. Smith farm and shut down. Godfrey L. Cabot is rigging up for a second test on the G.W. Truman farm. In Spring Creek district, A. E.MacIntosh has been granted a permit on the B. C. Tucker farm.

In Wirt County, on Oil Rock Run, W. C. Patterson has moved a machine to a location for No. 21 on the C. E. Vandevender farm in Clay district. In Pleasants County, G. D. Powell has been granted a permit on the G. W. Varner farm, McKim district. In Jefferson district, the Alum Cave Oil & Gas Co. has a permit on the William E. Bierer estate.

In Calhoun County, C. B. Lewis and others have made a location on the Virgil Hickman farm in Sherman district. In this district, R. Fowler has reached top of the Injun sand on the Lafayette Stump farm and shut down. W. H. Bickel is down 830 feet on the Luverna Barr farm, and Poling and Mollahan are drilling at 480 feet in a second test on the A. Smion farm. In Lee district, Litt Oil & Gas Co. has passed the 1,000-foot level on the J. S. Wade farm.

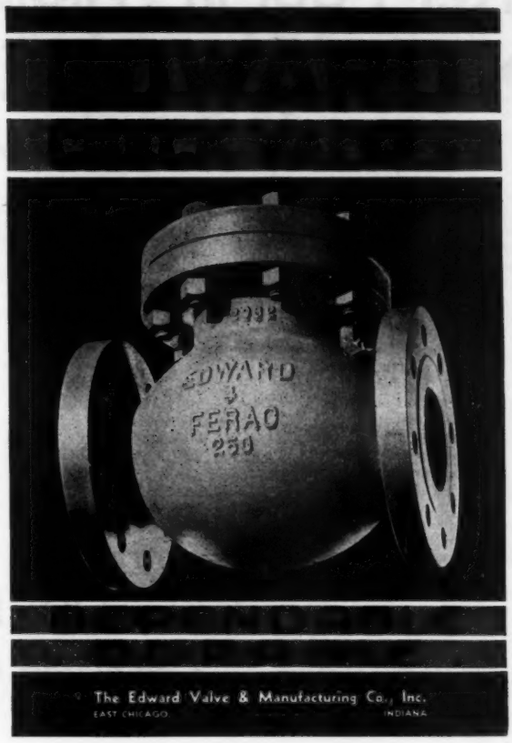
In Center district, Gilmer County, the Mountain Iron & Supply Co., drilling its No. 1 on the A. H. Stump farm deeper to the Berea sand, is at 2,305 feet. In DeKalb district, C. A. Jarvis and others are drilling a second test on the John H. Houghton farm. Charles Despard and others are about on top of the Injun sand on the M. L. Amos and others farm. Pittsburgh & West Virginia Gas Co. has started drilling No. 7,574 on the Quimby Kelly farm. Hope Construction & Refining Co. is down 2,040 feet in drilling deeper its No. 6,965 on the F. B. Reynolds farm.

Near Weston in Ritchie County, King Knob Gas Co. has a permit on the Peyton Tingler heirs farm. In Grant district, Griffin Producing Co. is down 1,400 feet on the C. B. McVay farm. In Clay district, Carnegie Natural Gas Co. has completed a rig for No. 3 on the M. H. Jones farm and in Union district a rig on the A. H. Tate farm.

SOUTHWEST PENNSYLVANIA

About a quarter mile northwest of the fair well on the J. N. Clutter farm, which is still producing in excess of 150 bbls. a day, the Natural Gas Co. of West Virginia drilled its No. 1 on the Sarah Carter farm deeper to the Gordon Stray sand about 2,670 feet. It proved dry at this

(Continued on Page 127)



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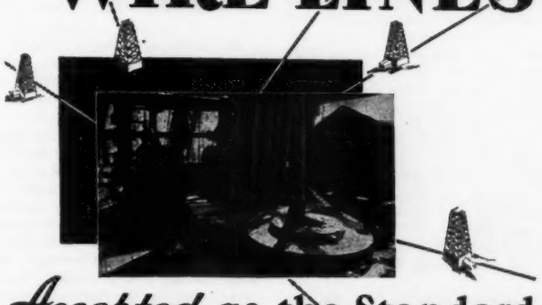

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Porter Pool in Midland County, Michigan, Hits New High With Completion of 7 Big Wells

By PAUL A. ELLIOTT
Staff Correspondent, Michigan Fields

MUSKEGON, Mich., Jan. 20.—The flush Porter Township, Midland County, Pool of central Michigan hit a new high of more than 100,000 bbls. a day potential with the completion of seven new Dundee producers and a major increase in an eighth well for an aggregate of more than 11,000 bbls. for the week.

Five other completions, one in each of five other areas in central and western Michigan, failed to produce, with the result that plugging operations were under way or about to be started.

Three wells in the premier Porter Pool added an average of more than 2,500 bbls. each to the potential of Michigan's major producing area, while two others averaged 1,500 bbls. a day for the heaviest week in about a month.

The Pure Oil Co.'s No. 3 Neitzke, NE SW NE Section 21-13n-1w, was reported the largest new oil producer with an additional flow of 2,850 bbls. Dundee limestone was topped at 3,403 feet with pay sands encountered at 3,427 feet where drilling was suspended.

Stoddard & Darke's No. 1 Floyd M. S. Emery, NW NE NE, also Section 21, was rated at about 2,400 bbls., or 100 bbls. an hour, when it topped the Dundee at 3,342 feet, the pay sands at 3,371 feet, and was completed at 3,380 feet, 9 feet in.

Another 2,400 bbls. of initial was added by deepening of Edward Stewart and the Gordon Oil Co.'s No. 3 Henry Carter, SW NW NE, also Section 21, 20 feet after an original flow of several hundred barrels.

George Hanners' No. 3 Hathaway, SW SE NE Section 17, made 1,640 bbls. initial, topping the Dundee at 3,383 feet and encountering pay sands from 3,401 to 3,421 feet, the total depth.

Davis Oil Co.'s No. 4 Neitzke, SE NW NW Section 21, made about 1,450 bbls. a day in the Dundee, topped at 3,411 feet and drilled to a total depth of 3,435 feet.

Three other small producers also were completed in Porter Township, as follows: Fred W. Turner and Charles Bell's No. 2 Hock, NW SE SE Section 21, 150 bbls. a day; Sun Oil Co.'s No. 4 J. L. Miller, SE NE SW Section 16, 100 bbls., and Smith Petroleum Co.'s No. 3 Elic Buschre, SW SE NW Section 22, 60 bbls. initial.

Carl Adams' No. 1 John Bolen, SW SW NE Section 14-14n-2w, Greendale Township, Midland County, topped the Dundee limestone at 3,502 feet, struck pay sand at 3,535 feet, but failed to flow when drilled to a total depth of 3,551 feet.

Another disappointment was encountered when Gerald Wilcox's No. 1 Emil Krzyszke, SW SE NE Section 1-14n-3w, Chippewa Township, Isabella County, failed to flow because of tightness of the formation. The Dundee was topped at 3,530 feet, with a show at 3,558 feet, but no commercial production at a total depth of 3,561 feet, where drilling was suspended.

Two Isabella County wildcats were to be abandoned as dry holes after failure to develop gas or oil production. V. M. Voorhees' No. 1 Smith in Section 30-16n-3w, Wise Township, was a failure in the Michigan gas series and was abandoned after being drilled to the red rock. L. G. Thompson's No. 1 Sheral M. Callihan, NE NE SE Section 20-16n-4w, Vernon Township, struck bottom water at 2,000 feet and was to be abandoned. It was known as the Stevenson Lake well.

W. Hunter Atha's No. 1 J. C. McGuire, C NW NE Section 36-16n-4w, Vernon Township, Isabella County, was nearing the Michigan gas series, where it probably will be completed within a few days.

Mellon & Pollock's No. 5 John Stough, NE SE SW Section 23, Vernon Township, also was reported nearing the Dundee oil pay sands.

Several other new Vernon tests are drilling, but none are near possible production.

Acid treatment only slightly increased the production of the Wittmer Oil Co.'s No. 1 John McReavy, E half SW Section 12-15n-4w, Isabella Township, Isabella County, recently brought in as the discovery well of a prospective new central Michigan pool between the Leaton and Vernon Pools. It is now making about 65 bbls. a day to one flow of 65 bbls. every three days.

Considering Michigan Field

Two additional major oil companies considering operations in Michigan are the Superior Oil Co., of California, and the Phillips Petroleum Co., large independent operators in Texas and Oklahoma fields, both of which have had geologists in Michigan for several weeks studying the situation and laying plans for a drilling program, it was revealed by State Geologist R. A. Smith.

In the Muskegon Sector

The Muskegon Development Co. is moving in a rig to start drilling a new wildcat structure test for the Muskegon Oil Corp., an affiliated company, on the William Vandermade lease, SW SE Section 26-10n-15w, Egelston Township, Muskegon County, east of the city of Muskegon and several miles southeast of the Muskegon proved field.

The new test was located where extensive scientific tests during recent months have indicated a possible new Muskegon County structure. The Muskegon companies conducted a similar but unsuccessful test drilling program in Dalton Township, Muskegon County, north of the proved field last year where they drilled five wells, four structure tests and one to the Dundee limestone.

The Lima Oil Corp.'s No. 11 L. P. Haight, SW SW SE Section 9-10n-16w, Muskegon Township, Muskegon County, an attempted quarter mile extension of the original Muskegon Field located on the Muskegon River flats, failed to develop production in the Dundee after similarly failing in the upper and lower Traverse formations.

A review of the Muskegon Field as of December 31, 1933, showed 168 oil wells producing 571 bbls. a day, or an average of about 3½ bbls. a day. The largest well is a producer from the upper Traverse, the first oil pay sand located in the discovery well of the field more than six years ago. The well is located in Section 22-10n-16w, Muskegon Township, where a new 100-bbl. well since has been completed. The review shows a total of 472 wells drilled in the Muskegon Field, 168 producing oil, 20 dry gassers, 15 temporarily off production, 45 permanently off production, 3 drilling and 221 plugged or plugging.

The field as of January 1 had a potential daily open flow of 1,352,200 feet of gas, 742,470 feet a day from 20 dry gassers and 609,730 feet of casinghead from 83 producing oil wells connected with two industrial pipe lines still in operation.

Several former dry gas wells now making oil are listed as casinghead producers. The largest gas well is a lower Traverse producer good for 125,400 feet a day located in Section 9-1n-16w, Muskegon Township.

Thirteen Monroe gas wells produce the largest quantity of dry gas but four lower Traverse gassers have the highest daily average at 64,200 feet closely followed by one upper Traverse dry gasser making 62,133 feet a day. Two Dundee wells make 98,834 feet, or 49,400 feet each daily. The 13 Monroe wells make 325,170 feet, or 25,000 feet each.

Oceana Field

James E. Flanagan's latest test in the Oceana Field, the No. 1 Clifford Garnett, SE SE Section 36-15n-17w, Hart Township, was nearing the upper Traverse pay sands as the week closed but was running about 30 feet lower than the nearest producer. He also has moved in for No. 1 Frank Mast, NW NW Section 36, Hart Township.

H. C. Nelson has landed drive pipe in his No. 1 Elmer and Bessie Newell, NW SE Section 35, Hart Township, and is preparing to move in for his No. 2 Anna Copenhaver, SW SE NE Section 36, same township.

John B. Northcott of Fremont, a new operator in the Oceana Field, is ready to spud in his No. 1 Jane Pinder, NW NW Section 31-15n-16w, Elbridge Township, on a lease directly north of Mr. Nelson's No. 1 Myrtle Spitler, one of the largest oil wells in the field.

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Central Ohio District Had Only Wells Completed in Central West Fields

BY GEORGE A. WHITNEY
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Jan. 22.—Little was accomplished in the Lima, Indiana, Illinois divisions of the Central West Field, there being no completions reported for the week, something that has not happened for more than 30 years. Kentucky also failed to report any new wells but Central Ohio showed numerous wells as the field is a combination of both oil and gas.

In Holmes County, Preston Oil Co.'s No. 3-1,529 on the Phillip Collier farm, Section 19, Hardy Township, produced 4 bbls. initial at a total depth of 3,603 feet.

In Fairfield County, City Natural Gas Works drilled in a gas well in No. 2 on the Jess Shull farm, Section 1, Berne Township, at a depth of 2,501 feet. Same company made a location on the Charles Johnson farm, Section 1, same township, and is drilling No. 2 on the Julia Boyer farm, Section 9, Pleasants Township, also drilling No. 2 on the Mary Everett farm, Section 16, Berne Township.

In Lorain County, Wittmer Oil & Gas Co. is drilling on the George Haumesser farm, in Lot 38, Grafton Township. In the same township, Wittmer Oil & Gas Co.'s No. 1 on the Phillip Webber farm, Lot 83, is reported as having an initial of 20 bbls., having produced 55 bbls. in three days.

In Summitt County, East Ohio Gas Co. is drilling on the Everett Bixler farm, Section 17, Springfield Township.

In Muskingum County, Fritz Oil & Gas Co.'s No. 2 on the Isaac Swingle farm, Section 23, Brush Creek Township, is a gas well at a total depth of 3,926 feet and in the Clinton lime formation. Lupher and Kline's test on the Clark Landis farm, Section 22, same township, is drilling below 2,600 feet. Sutton and Stansberry are drilling below 3,750 feet in No. 2 on the Ella Fountain farm, Section 23, same township.

In Athens County, C. W. Nuzum's No. 1 on the A. I. Vernon farm, Section 13, Berne Township, is a dry hole in the Injun sand at 950 feet. Gus Townsend and others' test, on Townsend farm, Section 17, Lodi Township, same county, is a fair gas well at a total depth of 780 feet. I. C. Robinson's No. 4 on the Alvin D. Cline farm, Section 13, Lee Township, is delayed with a fishing job at 1,225 feet.

In Stark County, East Ohio Gas Co.'s No. 1 on the H. and R. Konen farm, Section 22, Jackson Township, is a light gas well at 4,396 feet and same company is shut down at 300 feet in No. 4 on the Howard Fawcett farm, Section 17, same township. Cunningham Natural Gas Co.'s No. 2 on the Levi A. Stoner farm, Section 17, is a gas well in the Clinton lime at 4,529 feet. Brendel Producing Co. has a rig in for No. 2 on the Canton Suburban Realty Co.'s property, Section 20, also for No. 3, same property. Same company's No. 1 William M. Miller farm, Section 4, Plain Township, is drilling below 3,850 feet.

In Belmont County, Hobson and Patton's No. 14 on the Ernest J. Pfeffer farm, Section 34, Somerset Township, is a gas well at 1,094 feet. Robert Lewis and others' No. 6 on the Rosalia Johnson farm, Section 27, same township, is a gas well at 1,975 feet. T. C. Hall and others' No. 2 on the J. H. Lynn farm, Section 15, Union Township, is a dry hole at 1,102 feet. Robert Lewis and others are drilling No. 3 on the Sarah E. Douglass farm, Section 32, Warren Township.

In Guernsey County, Ferguson and others' No. 1 on the Fred Foraker farm, Section 20, Willis Township, is a gas well at 1,518 feet.

In Vinton County, Kachelmacher estate has a rig for No. 3 on the Lafayette Eggleson farm, Section 30, Brown Township. Co-operative Oil Co. is drilling No. 1 on the John C. Sampson farm, Section 20, Elk Township.

In Lawrence County, C. C. Wolfe and others are drilling on the Edward Miller farm, Section 28, Rome Township. Same parties are drilling below 3,100 feet in No. 1 on the F. D. Hager farm, Section 21, and Frick and others are drilling below 1,500 feet on the W. M. Murdock farm, Section 33, same township.

Best Well Completed in Jal Pool, New Mexico; Possible New Light Oil Field in Wyoming

By TOLBERT R. INGRAM
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Jan. 22. — Southern Petroleum Exploration Co. completed the largest oil well so far drilled in the Jal Pool in New Mexico in its No. 1 Ascarate, which flowed at the rate of nearly 5,000 bbls. per day. One small gas well was completed and another well abandoned in the Artesia area in Eddy County. Grayburg Oil Co. made a location in the Jackson area for No. 5 Burch, Stovall & Marshall's No. 1 Mock, in the Black River district in southern Eddy County may open another pool. The New Mexico supreme court has ruled that the severance tax enacted by the legislature last year is constitutional and will cost the oil producers $450,000 annually.

There were no completions or new operations reported in Colorado and only a few wells are showing any progress.

The E. W. Reeder well on the Overland Dome in Carbon County, Wyoming, has 2,500 feet of oil in the hole approximately 25 feet above the objective sand in the Dakota and may open a new light oil field. Ohio Oil Co.'s No. 1 A. J. Hazlett, at Allen Lake, in Carbon County, blew out in the Sundance and is estimated at 30,000,000 feet of gas per day.

Texas Co.'s No. 1 State, a wildcat in the South Cut Bank Field in Montana, 9 miles south and east of the nearest producer, has a show of oil in the lower Cut Bank sand. There were no completions or new locations in Montana.

Washington reports some activity among a number of scattered wildcats.

NEW MEXICO

Lea County

Pipe line runs from the Hobbs Pool in December aggregated 1,028,189 bbls., bringing total runs since proration began up to 39,982,351 bbls. Umpire C. G. Staley's proration schedule for the first half of January shows 183 units of 40 acres each on production, of which two units are given special allowances. The combined aggregate potential for the remaining 181 units as of January 1 was 1,278,894 bbls. daily, of which 49,980 bbls. was assigned to 17 units using the 40-60 basis and 1,228,914 bbls. to the units using the 25-75 basis for determining the daily allowable. Pipe line nominations for the first half of January were 33,468 bbls. daily, of which Shell Pipe Line Co. takes 18,000 bbls., Humble Pipe Line Co. 9,630 bbls., Atlantic Pipe Line Co. 4,500 bbls. and Texas Co. 1,338 bbls.

The biggest oil producer so far brought in in the Jal Pool in southeastern Lea County and which places that field in the big producers class was completed the past week in the Southern Petroleum Exploration Co.'s No. 1 Ascarate, C NE NW Section 24-25-36, in the northern part of the field. It flowed 993 bbls. through the casing in five hours and 20 minutes and was then shut in as all storage tanks were full. Pipe line connections are being made. It is estimated good for 4,464 bbls. in 24 hours and may exceed that figure. The pay was found at 3,294-3,312 feet, the latter being the total depth. A flow of 100,000,000 feet of gas per day at 3,212-86 feet was cased off. It is approximately 900 feet southeast of Humble Oil & Refining Co.'s No. 2-A Lindley, a comparatively small oil well, and three-fourths of a mile northwest of Continental Oil Co.'s No. 1 Sholes, a 60,000,000-foot gas well. Its elevation is 3,120 feet. Base of the salt was at 2,840 feet and top of the brown lime at 2,860 feet. It will call for several offsets. This is the first producer completed in New Mexico by Southern Petroleum Exploration Co., a subsidiary of Wiser Oil Co. Its headquarters are at Sistersville, W. Va., and its principal stockholders belong to what is known as "the Sistersville crowd," who were among the early operators in Wyoming and who are credited with early important discoveries in the Big Horn Basin.

Texas Co. is going back into its No. 1-B Shepherd, NW cor. SW Section 5-26-37, and is cleaning out to deepen. This well was completed at 3,262 feet in white lime last May, flowing 303 bbls. of oil and 129 bbls. of water and 2,000,000 feet of gas. Same company's No. 2 Moberly, C NW SE Section 8-26-37, is moving in materials, and Western-Anton's No. 1 Conditt, C SW SW Section 12-25-36, is shut down for orders at 3,349 feet after killing a flow of gas estimated at better than 50,000,000 feet per day.

Gypsy Oil Co.'s No. 1 La Munyon, C NE NE Section 28-23-37, Cooper area, has got away to a slow start on account of soft sand. It is drilling at 116 feet in sand and carrying 20-inch at 112 feet.

In the Lea area, Texas Co.'s No. 2-B Lynch, C SE SW Section 27-20-34, is drilling at 100 feet in sand, and its No. 4-A State, C Lot 7, Section 2-21-33, is drilling at 1,825 feet in anhydrite and salt. Same company's No. 1 Lea, SW cor. NW Section 14-20-34, is rigging up.

Eddy County

Pecos Valley Gas Co.'s No. 8 Vandadriff, NE cor. Section 5-17-28, Artesia area, was completed as a gas well at 1,403 feet, total depth. It gauged 240,000 feet per day at 1,375-85 feet and was shot with 60 quarts. It was then cleaned and gauged 360,000 feet.

Flynn, Welch & Yates' No. 67 State, C SW NW Section 10-19-28, was abandoned at 2,153 feet, in lime. It had approximately 100,000 feet of gas at 1,999 feet and a show of noncommercial oil at 2,135 feet.

One new location was reported in Grayburg Oil Co.'s No. 5 Burch, C SW NE Section 19-17-30, Maljamar area, an east offset to its No. 4 Burch, C SE NW Section 19, which is fishing for tools at 3,125 feet, and which was flowing 200 bbls. per day when rig was destroyed by fire several months ago.

Stovall & Marshall have gone back into their No. 1 Mock, C SE SE Section 29-24-27, in the Black River district, southern Eddy County, which was temporarily abandoned two weeks ago until titles were adjusted. It is bottomed at 2,338 feet in sand and was shot at 2,310-30 feet with 60 quarts. Fluid rose 800 feet in one hour and at the third hour there was 225 feet of water with the oil. It is shut down to run casing and it looks as if it may make a commercial producer and open another pool. The Black River anticline has a reported closure of 50 feet and one other test drilled in the past had a show of oil and gas.

R. D. Compton's No. 6 State, SW NE SW Section 15-16-23, Upper Cottonwood district, is drilling at 750 feet in black lime. Leonard & Barnsdall's No. 1 State, SW cor. Section 21-17-29, Jackson area, is shut down for 6⅝-inch pipe at 2,120 feet in gray lime. Pecos Valley Drilling Co.'s No. 1 McIntyre, NW NW Section 27-23-25, Dark Canon, western Eddy County, is drilling at 2,320 feet in black shale, and Ralph Spearow and others' No. 1 McClelland, SW NW NE Section 22-22-23, Indian Creek district, is bottomed at 4,815 feet in black lime and shale and fishing for tools.

Chaves County

George Etz and others' No. 1 Etz, C SE NE Section 14-8s-26, Railroad Mountain district, is drilling at 1,920 feet in brown lime, at which depth it reduced to 6⅝-inch hole. It had a show of oil and gas at 1,806-24 feet and a little sulphur water at 1,824-44 feet.

McKinley County

Frank Weber, D. K. Staley and others' No. 1, SW NE Section 29-20-9w, Bonita district, was completed for 5 bbls. at 500 feet.

Severance Tax

The New Mexico Supreme Court has ruled in a decision in the Flynn, Welch & Yates case that the tax imposed on oil production by the legislature early in 1933 is an excise tax and not a property tax and that the law is constitutional. It also held that the referendum petitions filed did not suspend the act and that it has been in effect as an emergency revenue measure since April 1, 1933. The law provides for a tax on all oil run at the rate of 2 cents per barrel on oil of 28 degrees gravity, or less; 4 cents on 28 to 50 gravity oil; and 6 cents on oil above 50 gravity. It also provides for a tax of one-tenth of 1 cent per 1,000 feet of gas. The tax is collected by the county treasurer. Statements are filed quarterly with the state tax commission and a duplicate with the county treasurer at the time the tax is paid. The county retains a third and remits the balance to the state. The latter then splits it equally between the school and general funds. It is expected to produce $450,000 annually, the revenue coming principally from production in Lea County, the remainder coming from Eddy and San Juan Counties. Texas Co., Stanolind Oil & Gas Co. and Ohio Oil Co. have been paying part of the severance tax, subject to the decision of the court, in order to help out the counties in continuing their schools.

COLORADO

Moffat County

Rocky Mountain Gas Co.'s No. 2 Bogenschultz, SE cor. Section 9-6n-91, Craig Dome, which gauged 1,580,000 feet of gas in 24 hours from sand at 2,750-52 feet, is recementing 5⅓-inch liner to shut off a little water just above the sand. It will be completed temporarily in this sand and rig moved back over No. 1 Bogenschultz to do some repair work. No. 2 was not drilled into the third sand in which the big gas was found in No. 1.

Texas Co.'s No. 5 Parkinson, NW SW Section 23-4n-92, Iles Dome, is coring at

First Important Gas Strike Is Reported From Western Saskatchewan District

BY VICTOR LAURISTON
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Jan. 22.—An important gas strike is reported from western Saskatchewan, where Lloydminster Gas Co.'s No. 1 wildcat has been drilling for several months on the eastern end of the Ribstone-Blackfoot structure, less than a mile north of Lloydminster. The test struck a fair gas flow at 1,390 feet. Unofficial estimates place the flow at around 1,000,000 feet a day, with rock pressure approximately 400 pounds. The strike is the nearest approach to commercial gas production yet reported from any part of Saskatchewan. The nearest market is at Lloydminster, while if a large producing field can be developed, the gas may be piped about 80 miles to Battleford or 160 miles to Saskatoon.

The Ribstone-Blackfoot structure was first mapped by Dr. G. S. Hume of the Geological Survey of Canada about seven or eight years ago. The structure lies mostly on the Alberta side of the interprovincial boundary, and heretofore drilling has been entirely on the Alberta portion. About a dozen wells were put down by various interests, of which four, drilled by Meridian Oils, Ltd., and associated interests, secured some production of asphaltic crude around 1,800 to 1,900 feet. Production was encountered between 100 and 200 feet above the lime, in a sand of the Lower Cretaceous formation; while several small gas shows were usually met in the Cretaceous. Production of heavy crude was taken from the Meridian wells for about a year, but for more than a year they have been off production.

The structure apparently rises toward the east, and for this reason the Lloydminster test, which logged somewhat higher than the Alberta wells, was expected to get gas. The present strike is apparently from one of the upper sands rather than the main oil horizon encountered in the Alberta wells.

Mar Jon Section

In the Mar Jon section of the South Turner Valley Field, Becker Syndicate's No. 2 Anaconda, LSD 15, Section 28-18-2w5, is making hole slowly about 300 feet or more in the Madison lime. A fair crude naphtha recovery is being secured. At last reports the drill was working in a hard band of the limestone.

Mar Jon Oil Co.'s No. 2 Kindersley, LSD 10, same section, is making hole in the pokerchip shales above the lime around 4,886 feet, and may be the next important completion. Director Royalties' No. 1, LSD 16, same section, is working on derrick with boilers on the ground.

Spooner Oils' No. 5 Anaconda, LSD 1, same section, is drilling, underreaming and carrying 13⅜-inch casing, with pipe down to 2,920 feet. Pacalta Oils' No. 1, LSD 7, is drilling and underreaming,

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3,176 feet and will be an early completion in the Sundance. Stanolind Oil & Gas Co.'s No. 21-X, NE SW NW Section 23-4n-92, is drilling at 2,760 feet.

Park County

South Park Oil Co.'s No. 1 Milligan, NE cor. SE Section 13-8s-76, Jefferson district, is drilling at 3,165 feet in arkose.

Grand County

Interstate Oil & Refining Co.'s No. 1 Hinman, NE SE NW Section 11-2n-81, Dirt Creek, is running the 8¼-inch to bottom at 1,340 feet.

Suit Appealed

Standard Oil Co. of Colorado has appealed from the decision of the Federal district court at Denver to the U. S. Circuit Court of Appeals in the case of the Standard Oil Co. of Indiana to restrain it from using the word "Standard" in its corporate name. The Indiana company brought the suit in January, 1931, but decision on final hearing, in which a permanent injunction was granted, was not rendered until March, 1933. The issues involve some factors not developed in similar litigation in other states. In this case the Standard of Colorado company claims to have done business with the Standard of Indiana company through a subsidiary by the sale to it of crude oil production some time before the suit was brought and to have been engaged in business in the state prior to the time when the Indiana company began marketing its own products in Colorado under its own name.

WYOMING

Carbon County

The most important wildcat drilling in Wyoming, Earl W. Reeder, Inc.'s No. 1 Union Pacific, C SW SW Section 19-20-83, Overland, or Pass Creek Dome, in Carbon County, is at a critical stage and important developments are expected within the next 25 feet, or more. At last reports it was drilling at 3,804 feet and carrying the 6⅝-inch at 3,732 feet and expecting the top of the Dakota at 3,830 feet. It has had a number of shows of oil and gas. The last was at 3,762 feet when the oil slopped over the top as the tools were withdrawn. It then settled down to 2,500 feet of oil in the hole. The hole was then swabbed down and oil rose 2,500 feet over night. It had oil and gas shows at 1,700 feet in the base of the General Petroleum series and three between 3,000 and 3,300 feet in the Frontier. It had another at 3,465 feet, 3 feet below the top of the Mowry shale, and others at 3,735 and 3,745 feet. While these indications are considered very encouraging, their full significance can not be determined until the sand is actually penetrated as there are instances in that area where the oil has escaped through fractures up into the shale and others in which the shale oil is followed by heavily saturated sands.

Petroleum Exploration Co. of California's No. 2, SW Section 29-23-88, Buck Springs, is another test attracting attention. It is bottomed at 1,405 feet and preparing to run 12½-inch. It topped the first Wall Creek at 818 feet and had a flow of 1,000,000 feet of gas which decreased to 100,000 feet per day. This was followed by oil shows at 890, 987 and 1,045 feet.

Ohio Oil Co.'s No. 1 A. J. Hazlett, NE NW Section 34-23-79, Allen Lake structure, had a gas blowout from the Sundance sand and is fishing for rotary bit at 2,840 feet. The gas flow was estimated at 30,000,000 feet per day, or considerably more than the gas in No. 2 Hazlett in the same horizon. No. 2 was complete as a gas well with an initial flow of 17,000,000 feet, and rig was moved back to No. 1 Hazlett to deepen as a test for oil in the Tensleep. The new field is being connected up with a 20-mile 6 and 8-inch pipe line to the line from Dutton Creek to Laramie. The pipe has been strung and ditching is to begin shortly.

Producers & Refiners Corp.'s No. 4 Wertz, SW cor. SE Section 7-26-89, Wertz Dome, is straightening to lower 6¼-inch. Total depth is 3,541 feet.

Big Horn County

Taylor Oil Co.'s No. 1 Island, Lot 5, Section 25-56-97, Byron district, a test for green oil in a fault block, is shut down temporarily at 2,376 feet, at which depth it had a show for 500,000 feet of gas and 6 bbls. of 56 gravity oil per day. The 12½-inch is at 2,176 feet and the Frontier is expected within the next few feet. The same interests are preparing to start a second well at once.

Torchlight Oil Corp.'s No. 1, SW cor. SE Section 19-51-92, Torchlight district, is shut down at 4,165 feet, total depth. It was pulling the tubing to plug back when the string parted 300 feet off bottom with the packer attached.

Sheridan County

Houghton & Mumper's No. 1 Allison, SW SE Section 15-55-85, Beaver Creek, is reported abandoned at 78 feet. It drilled to 250 feet, lost the hole and skidded rig.

Goshen County

Joyce Hardy and others' No. 1 Peterson, SW cor. Section 21-22-63, Goshen Hole district, spudded January 11 and shut down temporarily.

Natrona County

Midway Oil Corp.'s No. 1 Boyer, SW NE NE Section 23-35-79, Midway Dome, which has been shut down for new drill stem at 4,680 feet, has resumed.

Niobrara County

Interstate Oil & Refining Co.'s No. 1 Morrell, NW NE SE Section 2-39-61, West Mule Creek, is drilling at 3,415 feet in a very hard rock formation believed to be the cap over the objective sand in the base of the Minnelusa. Ed Shogren and others' No. 1 Olinger, NE NW Section 1-36-63, Old Woman Creek, is drilling at 780 feet.

Weston County

Wyoming Gas & Oil Co.'s No. 4 McCullough, SW NW NE Section 23-46-64, the only active operation in the Osage Field, is rigged and ready to spud.

MONTANA

Glacier County

Interest in Cut Bank this week was centered in Texas Co.'s No. 1 State, C NE Section 16-32-5w, a joint operation with Santa Rita Oil & Gas Co. and Montana Power Gas Co., a wildcat 9 miles south and east of the nearest oil well. It is drilling at 2,976 feet and carrying 7-inch at 2,966 feet and showing oil in the lower Cut Bank sand at 2,973 feet. The upper sand was missing. The structure is known as the South Cut Bank. In the field proper there were no completions or new locations. Alberta-Pacific Consolidated Oil Co.'s No. 3 Matson, SW NW SW Section 14-36-6w, is drilling at 2,820 feet, and Dunstall and others' No. 1 Kennerly, NE NW Section 22-34-6w, is working on water well at 175 feet. R. C. Jeffries and others No. 1 Clark, C SW SW Section 3-34-6w, is resuming after cementing the 10¾-inch at 567 feet. Last named topped the Colorado at 555 feet.

Montana Headlight Oil Co.'s No. 2 Williams, C NE NE Section 11-34-6w, is waiting after cementing 10-inch at 580 feet, and Nadeau Brothers' No. 1 Van de Mar, C SE NW Section 35-35-6w, reported a completion last week, is averaging 90 bbls. per day on the pump. Olive Oil Co.'s No. 1 Winkler, NW NW Section 35-35-6w, is drilling at 2,500 feet, and Par Oil Co.'s No. 2 Haines, SE cor. SW Section 2-34-6w, has cleaned out to bottom at 2,712 feet and is fishing for tools.

Santa Rita Oil & Gas Co.'s No. 1 Whetstone, SE cor. Section 27-35-6w, (formerly carried as No. 1 Billedeaux) is rigging up, and its No. 2 Cardwell, C Lot 4, Section 15-35-6w, is drilling at 1,200 feet. Same company's No. 3 Tribal, C NW NW Section 15-35-6w, is rigging to resume at 750 feet after replacing rig destroyed by fire, and its No. 3 Yunck, C SE SW Section 14-34-6w, is drilling at 875 feet.

R. C. Tarrant's No. 2 Britton, SW NW SE Section 14-34-6w, is shut down at 2,917 feet, and his No. 2 Haglund, Sr., C NW NW Section 13-34-6w, is bottomed at 2,450 feet, has shut off water from behind the 10-inch and is cleaning out at 2,150 feet. Tarrant's No. 1 Winkler, C SW SW Section 23-35-6w, is bottomed at 2,530 feet and cleaning out at 1,250 feet.

Texas Co.'s No. 1 Haggerty, SE cor. Section 9-34-6w, will cement at 2,985 feet. Total depth is 2,990 feet. Same company's No. 1 Purdy, SE cor. SW Section 35-35-6w, is drilling at 2,503 feet, and its No. 1 Yunck, NW SW Section 14-35-6w, is standing rigged.

Fergus County

H. Clark Rowland and others' No. 1 Woodward, SE cor. SW Section 20-14-24, Button Butte district, is resuming at 2,650 feet to deepen to the Devonian. It was taken over from Northern States Oil Co. at 2,040 feet and deepened to 2,650 feet where it had a show of oil in the Madison followed by water.

Liberty County

Harold Hayes and others' No. 1 Strode, NW SW Section 3-36-4e, Sweetgrass Hills, is drilling at 750 feet. It had a show of light oil in the Colorado shale at 590 feet.

Petroleum County

Guy Smith and others' No. 1-A, SE cor. Section 3-13-26, Flatwillow district, is drilling at 1,200 feet in new hole.

Hill County

Independent Natural Gas Co.'s No. 1, NE SE Section 9-32-17, Box Elder district, is fishing for bit at 1,130 feet.

Montana Committees

A meeting of representatives of all branches of the oil industry in Montana was held at Great Falls at which steps were taken to organize the Petroleum Industries Committee of Montana, to cooperate with the national organization. B. H. Markham, national director, was represented by Walter F. Brittan and W. H. Ferguson, of Denver, chairman of Region 5 General Committee under the code, represented that division. An executive committee was named composed of LaRue Smith, W. E. Rice, C. W. Landarud and E. B. Coolidge, of Great Falls; L. J. Yealey and J. W. Johnson, of Shelby; and J. D. Barton and Frank Bird, of Butte. This committee will select an executive secretary.

The Montana legislature authorized the governor to name an oil conservation board for the state to allocate Montana's production quota under the code among the various fields and Gov. Frank Cooney appointed E. B. Coolidge and W. E. Rice, of Great Falls; O. M. Webb, of Sunburst; L. B. O'Neil, of Cut Bank, and C. J. Dousman, of Helena.

WASHINGTON

William A. Broome and others' No. 1 Donnie Boy, Section 19-17-28, Grant County, is drilling at 180 feet. Forks Prairie Oil Co.'s No. 1 Rosalie, Section 9-28-13, Clallam County, has resumed drilling at 2,088 feet. The hole is still making around 1,000,000 feet of gas per day from horizon at 700 feet. Acme Oil & Gas Co.'s No. 1, Section 13-39-1, Ferndale Ridge, Whatcom County, which has been idle for more than two years, is resuming at 1,400 feet and is sidetracking tools, and Curtis Natural Gas Co.'s No. 2 Ives, Section 21-40-4, Nooksack district, has recovered lost tools and resumed drilling below 1,100 feet. Northwestern Natural Gas Corp.'s No. 6 Walla Walla, C NE NE Section 29-11-26, Rattlesnake Hills, is drilling at 1,647 feet in basalt. Northwestern Oil Research Corp.'s No. 1-A Norcom, SW Section 26-22-20, Chelan County, is drilling at 460 feet and carrying 12½-inch.

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California Fields

(Continued from Page 122)

ing slowly due to the desire of operators to retard development work as long as possible. The Barnsdall and Rio Grande are redrilling No. 8 Doty at 4,375 feet and the Signal Oil & Gas Co. is redrilling well No. 2 on state tideland permit No. 98 at 4,975 feet. The Pacific Western Oil Co. landed a string of 11¾-inch in well No. 11 on state tideland permit No. 92 and is rotating ahead in the productive Vaqueros. This well is scheduled for completion in the underlying Sespe, although drilling operations will no doubt be slowed up.

In the San Miguelito Field of Ventura County, the Chanslor-Canfield Midway Oil Co. is attempting to recomplete No. 2-A Hobson after cleaning out the hole to the top of the plug at 7,925 feet. This well sanded up a month or two ago, since which time the company has been engaged in corrective work.

There has been a slight increase in the amount of work under way in the Ventura Avenue Field, although the Associated, General Petroleum and Shell are merely undertaking normal conservative development.

In the Santa Barbara Mesa Field, Fred Garliepp has recompleted his well No. 1 pumping 35 bbls. of oil per day from 2,076 feet. The last well finished during the current week was General Petroleum's No. 26 Heisen, a new well in the Mount Poso Field of Kern County, which was brought in on the beam pumping 245 bbls. of 18.1 oil per day from 1,997 feet after the hole had been finished with a 6⅝-inch liner including 52 feet of perforated.

Eastern Fields

(Continued from Page 123)

location. The 30-foot sand was found at 2,625 feet and on top of the Gordon Stray sand was a very hard formation. The location is in East Findley Township, Washington County. Across the road east from the Clutter well, this company is rigging up to drill No. 3 on Sarah Carter farm.

In Richhill Township, Greene County, C. J. Adrian completed a test on the G. W. Woodruff farm in the First Salt sand at 1,230 feet. It is showing for about 190,000 feet of gas a day.

In Aleppo Township, Greene County, Manufacturers Light & Heat Co. is drilling deeper its No. 1 on the Anna Henry farm. The 30-Foot sand was found at 3,064 feet with about 184,000 feet of gas a day showing at 3,070-72 feet. The depth is now 3,258 feet. In Dunkard Township, Convex Glass Co. is shut down at 1,325 feet on the G. C. Ross farm. In this township, west of the producer on the Floyd Lynch farm, Conklin, Phillips and others have made a location on the McClure heirs farm. In Greene Township, John Lantz has reached 1,797 feet on his own property. The top of the Big Injun sand was at 1,725 feet and the hole has filled with water. Richhill Oil & Gas Co. is running casing to 1,430 feet on the P. W. Gribben farm in Richhill Township.

In Amwell Township, Washington County, Carnegie Natural Gas Co. is drilling at 1,750 feet on the C. W. Dunn farm. The top of the Salt sand was at 1,605 feet with about 157,000 feet a day showing at 1,685 feet. On the John C. Murphy farm, same township, this company is drilling at 1,953 feet to which depth casing was run. The Salt sand was dry. This company's test on the Fred Baumberger farm, which showed considerable gas in the Salt sand, which was turned in the lines, has exhausted itself and is being drilled deeper. It is drilling at 1,910 feet with about 1,825 feet of water in the hole. Manufacturers Light & Heat Co. has started drilling its test on the C. A. Miles farm. Wise Oil & Gas Co. is cementing its test on the Eliza Roach farm at 1,080 feet.

SOUTHEAST OHIO

Four producers and one gas well were completed in Southeast Ohio during the week. An interesting test is in Athens County, near Jerseyville, Section 17, Lodi Township, where A. D. Townsend and others drilled on the Townsend farm in the Moxbury sand, depth 790 feet. It gauged 1,000,000 feet a day.

In Guernsey County, E. C. Quillan and others completed a test on the E. C. and Verna A. Quillan farm of 20 acres in Section 10, Wheeling Township. It reached the Niagara lime at 2,428 feet and is making 10 bbls. a day natural.

In Medina County three wells were completed. On Tract 13, Lots 2 and 3, Oko Oil & Gas Co. completed No. 59 on the Henry Essig farm in Chatham Township. It is showing for 10 bbls. a day from the Berea grit after shot. The depth was 396 feet. In the same township but Tract 15, Lot 12, E. R. Edson & Son Co. completed No. 40 on the Ed G. Miller farm at 485 feet, the Gerea grit. It made 5 bbls. the first day after shot. In Litchfield Township, Section 1, D. A. Lake completed No. 12 on the Pearl and Frank Weaver farm at 323 feet, the Berea grit. It produced 10 bbls. the first day after shot.

Michigan Fields

(Continued from Page 124)

Mr. Northcott also has made location for his No. 1 Charles Schofield, NE NE NE Section 35, Hart Township, a direct west offset to Mr. Flanagan's No. 1 Frank Mast.

A survey of the Oceana Field as of January 1, 1934, showed 10 producing oil wells with a daily average potential of about 100 bbls. each, or a total of 1,000 bbls. Two wells including the No. 1 Spitler and Charles Johnson's No. 1 Oceana Grange well, the former in Section 31 of Elbridge Township and the latter in the center of the north line of the Nelson A. Doolittle lease, have been completed during the past three weeks considerably increasing the field potential. Eight dry holes limit the field to the south, southeast and northeast.

Ogemaw County

After striking bottom water for a disappointment in the upper Traverse limestone in the No. 1 Fisk Brothers, SE SW SW Section 27-22n-2e, West Branch Township, Ogemaw County, Dr. C. L. Hess directed his drillers to continue to the Dundee for a deeper test. Water was struck in this well located about half a mile west of the Weber-Wilcox discovery and No. 2 at a depth of 1,760 feet. Pure Oil Co. temporarily suspended drilling of its No. 1 Fisk, SW SE SW Section 27, a direct offset, until the Hess well is completed.

Six other Ogemaw tests are drilling at 1,000 feet or less.

Arenac County

Two new tests in Arenac County about 60 miles north of Bay City are attracting considerable attention to an area about 35 miles southeast of the Ogemaw Field on the shore of Saginaw Bay.

Maynard L. Smith's No. 1 Gilbert Proulx, NW SW NE Section 12-19n-6e, AuGres Township, is drilling at more than 1,000 feet deep, while one of two new permits issued this week is for the Lumber Drilling Co.'s No. 1 Dudley Lockhart, SE SE NE Section 25-20-5e, Mason Township, Arenac County, near the village of Twining and about 9 miles northwest of the AuGres test.

Isabella County

W. J. Bernier's No. 1 Flood, NE SW SW Section 9-16n-4w, a Vernon Township, Isabella County, semiwildcat, was shut down at 3,730 feet in the Bell shale, just above the Dundee lime.

Two other Isabella County outposts are drilling, McClanahan Oil Co.'s No. 1 Stanley Demski, SE SE SE Section 28-15n-3w, Denver Township, now below the Michigan gas series without production, and J. E. Harding's No. 1 William Todd, NE NE NE Section 7-14n-6w, Broomfield Township, having difficulty above the Michigan gas sand.

Saginaw County

Two tests in Saginaw County where operators are seeking to locate an extension of the Porter Township trend of Midland County were nearing the Dundee formation as the week closed.

Alex Jeffry's No. 1 John Hubbell, NE NE SE Section 7-11n-2e, Fremont Township, was 11 feet in the Dundee at 3,168 feet deep on a location about 10 miles southeast of the Porter Field.

J. V. Spillane's No. 1 Lamon Russell, C NW NE Section 24-12n-1e, Jonesfield Township, about 7 miles southeast of Porter, also was reported about 20 feet in the Dundee limestone at 3,214 feet.

Midland County

McClanahan Oil Co.'s No. 1 John Brooks, SW SW SE Section 11-13n-1e, Mount Haley Township, was the only Midland County wildcat drilling this week. Four other tests were shut down as follows: S. S. Bankle's No. 1 Farnsworth, Section 13-13n-2w, Jasper Township; L. G. Thompson's No. 1 Oliver, Section 18-14n-1w, Lee Township; Greendale Lee Oil Development Co.'s No. 1 Hotsman, Section 13, Lee Township; Lawson Oil & Gas Co.'s No. 1 Atkinson, Section 26-15n-1e, Lincoln Township.

Other Wildcats

Two new tests are under way in Pine River Township, Gratoit County, includ-

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ing Kenneth Montigel's No. 1 Raycraft, Section 20-12n-3w, and Vester Leonard's No. 1 Ernest R. Shepler, Section 26, same township.

The Sun Oil Co. has reached a depth of more than 2,500 feet in its No. 1 William O. Flemming, NE SE NW Section 5-17n-8w, Evart Township, Osceola County.

McClanahan Oil Co.'s No. 1 David W. Frackleton, SE SE SE Section 18-18n-5w, Lincoln Township, Clare County, also is drilling after landing drive pipe.

The first Ionia County test, J. Lee Strachan, trustee's No. 1 Mary and Robert Moses, NE NE Section 19-8n-5w, North Plains Township, is driving pipe, while W. J. Bernier's No. 1 H. A. and H. D. Woodworth, NE SE Section 22-16n-4w, is reported shut down. J. Sever's No. 1 Redway, Section 9, Ida Township, Monroe County, also was reported shut down with water at 1,900 feet.

The Daily Crude Oil Co. took out a permit for its No. 2 H. P. Christensen, NE NW NE Section 10-12n-6w, Home Township, Montcalm County, where the No. 1 Christensen recently came in as the discovery well of a prospective new central Michigan pool in the upper Traverse formation.

To Lay 55-Mile Gas Line

The American-Michigan Pipe Line Co., new subsidiary of the American Light & Traction Co. of New York, has applied for a permit to lay a new gas line from the Austin Township, Mecosta County, gas pool to Muskegon, a distance of about 55 miles. A hearing was set for Thursday, February 8, before the Michigan Public Utilities Commission.

The New York company has closed negotiations with Taggart Brothers, Inc., of Big Rapids, for a minimum of 15,000,000,000 feet of reserves in the new central Michigan pool. Taggart Brothers have reserved the first 2,000,000,000 feet for the Big Rapids Gas Co., which they recently purchased and are now furnishing with natural gas through a new 4-inch 7-mile line.

Officers of the new American-Michigan Pipe Line Co. are: President, Chester M. Chubb, of Chicago, president of the A.L.&T. company; vice president, E. H. Kifer, president and general manager of the Muskegon Gas Co. and former head of the San Antonio Public Service Co., San Antonio, Tex.; secretary-treasurer, G. J. Zorn, also secretary-treasurer of the Muskegon Gas Co.; and directors: Glen R. Chamberlain, head of the Grand Rapids Gas Light Co., another A.L.&T. subsidiary; W. F. Douthirt, of New York, attorney for the parent company, and O. S. Hagerman and Harry B. Munsell, of Chicago, officials of the parent company.

Taggart Brothers have started a fifth well 1 mile west of their last record 34,000,000-foot gasser, to be completed before the line is started. It will take about 120 days to lay the line, bringing gas to Muskegon on or before July 1.

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Canadian Fields

(Continued from Page 125)

with 10¼-inch pipe down to 3,540 feet. Publix Oil & Gas Co.'s No. 1, LSD 8, is standing at around 1,300 feet with 16-inch hole to bottom; Sunburst-Mid Royal's No. 1, LSD 14, is standing at 1,630 feet. George M. Bell and R. A. Brown are reported organizing a company to drill a test on the R. W. Brown acreage in LSD 13 and NW LSD 12. Century Royalties' No. 1, LSD 14, has derrick up and is installing machinery. Test is expected to spud in early in February.

New West Side Test

West of Section 28, and offsetting the new Brown & Bell test in LSDs 12-13, Excelsior Royalties will drill in LSD 16, Section 29-18-2w5. This location is on the west flank of the Turner Valley structure, and will further test the crude oil potentialities of the lime, indicated by the recent strike of crude in Miracle Oils' No. 2. The test is the first undertaken in Section 29. British Columbia interests are behind the venture. Logs of tests farther east indicate LSD 16 is on the west side but close to the crest of the fold.

South Turner Valley

A. H. Mayland's No. 1, LSD 5, Section 34-18-2w5, taken over a couple of years ago from Rand Petroleums, Ltd., will likely be finished by a new group, largely composed of Winnipeg men. The location is one LSD north of Merland's No. 1 producer in Section 27. Northwest Co.'s No. 1 Calgary & Edmonton-Longview, LSD 5, Section 27-18-2w5, is drilling in shale below 3,568 feet. Connaught Royalties' No. 1, LSD 16, Section 32-18-2w5, is making arrangements for a test. Associated Royalties' No. 1 Spray, LSD 9, Section 5-19-2w5, is again standing idle at around 3,250 feet, owing to failure of the second water well to hold up.

Far South Tests

In the far south, Highwood-Sarcee Oils' No. 1, LSD 16, Section 21-18-2w5, is drilling below 3,850 feet, and is reported through the McDougall-Segur sand. Union Drilling Co.'s No. 1, LSD 8, same section, is reported drilling around 2,800 feet, after getting through the cardium formation at about 2,550 feet.

Royalite Securing Production

Shareholders of Wellington Oil & Gas Co. will meet January 27 to consider an offer of Royalite Oil Co. for the company's acreage and production in LSD 1, Section 20-19-2w5. A deal is pending for purchase by Royalite of the production and acreage of Sterling Pacific Oil Co. in South Turner Valley, and negotiations are reported in progress with Calmont Oils, Ltd., and other companies. Reports that Royalite had offered to buy the wells of Mercury Oils, Ltd., in Section 4-19-2w5 have been denied by F. C. Biggs, secretary of Mercury.

Central Turner Valley

In the Central Turner Valley, Okalta Oils' No. 4, LSD 8, Section 1-20-3w5, has run 10-inch casing to 2,600 feet and is drilling out a bridge below this point and straightening the old hole, bottomed at 2,800 feet.

Border Fields

On the Alberta end of the international Reserve Dome structure, Rialto Oils' No. 1, LSD 4, Section 15-1-9w4, is making new hole below 2,660 feet.

Twin River Test

On the Twin River structure south of Lethbridge, Nordon Corp. and C. A. Roney's No. 2 Twin River, LSD 11, Section 2-2-20w4, will be cleaned out and given a second acid treatment. Some 200 bbls. of light crude are reported in tankage, having been brought up with the gas. Gas pressure has increased from 1,160 to 1,200 pounds.

Tests in the Foothills

On the Moose Mountain structure west of Calgary, Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, is making new hole from 3,645 feet.

On the Pekisko Hills structure south of Turner Valley, Pekisko Hills Co.'s No. 1, LSD 6, Section 6-17-2w5, has derrick up and some equipment in place but may delay starting owing to uncertainty as to water supply.

Ontario Deep Tests

In Essex County, Ontario, Bon Jasperson's No. 1 Trenton limestone test in Lot 14, Concession 2, Maidstone Township, is drilling in the top of the granite at around 3,500 feet and has encountered water. It will be plugged and abandoned.

In the Dover Field, Kent County, Ajax Oil & Gas Co.'s No. 7, Antaya farm, SE Lot 1, Concession 4, Dover East Township, is being shot. It got a gas show in the Trenton limestone at 3,181 feet, estimated 75,000 to 80,000 feet a day. Prairie Oil & Gas Co.'s No. 2, Stephens farm, Lot 2 Front Concession, is shut down at 1,035 feet.

In the Dawn gas field, Lambton County, Union Gas Co.'s No. 71 has been located in NW E half, Lot 23, Concession 4, Dawn Township, in the west end. Union's No. 72 has been located in SE Lot 25, Concession 13, further east. In Moore Township, S. S. Reesman Syndicate's No. 1 on the Kerr farm, Lot 21, Concession 1, is at 165 feet. Some shallow drilling for oil is being done by Bothwell interests south of the Bothwell Field in Kent County. In the Haldimand Field, a fair gasser has been finished on the Louis Zimmerman farm near Attercliffe, and the outfit moved to the Rufus Harrington farm for a second test.

Exposition Exhibitors Retaking Booth Space

The option granted to all exhibitors at the International Petroleum Exposition and Congress held in 1930 reserving their former space free of charge until January 15, is now up, and when William B. Way, general manager of the exposition and his office crew finished checking up old space taken and allotting space to new exhibitors it was found that 69 per cent of the booth space has been taken for the eighth show to be held in Tulsa May 12 to 19.

"Exhibitors," said Mr. Way, "have taken larger space per exhibitor this year which seems to indicate that manufacturers, scientists and engineers have a greater number of new kinds of machinery, improved equipment, inventions, and new ideas and methods to display than ever before.

"The list of exhibitors shows that the majority of the leading supply houses and most of the leading oil companies have already signed contracts. Others have requested information and will probably sign a contract within a few weeks. Committees are at work to make the oil show a success from every standpoint.

"The transportation committee headed by A. F. Winn, traffic manager of the Skelly Oil Co., is securing reduced freight rates for exhibitors and reduced fares for the thousands of visitors from all parts of the nation and the world.

"A citizens committee appointed by the Chamber of Commerce of Tulsa and headed by W. W. Haynes is arranging with hotels to provide housing facilities at usual rates. These rates will be published later and furnished to anyone requesting.

"The scientific and technical committee, headed by W. A. Schlueter, president of the Refinery Supply Co., is working on plans to secure for the exhibits in the scientific and technical building everything of this nature which will be of interest to the oil man."

TECHNICAL QUESTIONS ANSWERED

By Charles K. Francis, Ph. D., Technical Editor

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible.

Inquiries must be signed but only the given initials will be printed. The source of the question is considered to be confidential

Questions requiring a discussion of patents, the use of intricate formulas, extended computations, or cost estimates cannot be considered.

When the matter is of general interest the reply will be published within a reasonable time.

Cooling and Heating Efficiencies of Anti-Freeze Chemicals

We shall be grateful for any assistance you can give us as to the relative efficiencies of anti-freeze mixtures containing ethyl alcohol, glycerin, or ethylene gycol, in automobile hot water heaters in which the liquid in the cooling system, absorbing heat from the motor, is used to warm the air in the car. Are we correct in assuming that the thermal conductivity and specific heat of the liquid have an important bearing in the matter?—C. H. B.

Glycerin and ethylene glycol are superior to alcohol for diluting with water as antifreeze mixtures. Under the conditions of use, there is but little difference between the two when considered as a medium for the transfer of heat. Glycerin and ethylene glycol water solutions both have high specific heats and thermal conductivity, with a slight advantage favoring ethylene glycol.

The factors surrounding the use of these three substances, as a protective medium for the circulating liquid during cold weather, are of more importance than the use as a heating agent. Several investigators, mentioned below, have discussed the advantages and disadvantages of these compounds when used as antifreeze solutions.

Keyes has summarized the considerations as follows:

Ethyl Alcohol

Advantages:
1. Ability to reduce freezing point.
2. Noncorrosive and no effect on rubber.
3. Water solutions have low viscosity.
4. Boils without decomposition.
5. Low price, with wide distribution.

Disadvantage:
1. Boils off with water, therefore losses high.

Glycerin

Advantages:
1. Depresses freezing point.
2. Little loss on evaporating.

Disadvantages:
1. Softens rubber.
2. High viscosity at low temperature.
3. Production low, not well distributed.
4. High initial cost.

Ethylene Glycol

Advantages:
1. Little loss on boiling.
2. Noncorrosive.
3. Only slightly higher viscosity than ethyl alcohol at low temperatures.
4. Little influence on boiling point of water.
5. Water solutions have high specific heat and high conductivity.
6. Potential production high.

Disadvantages:
1. Softens rubber.
2. Finds way through cracks, etc., easily.
3. High cost.

Less glycol is required to produce a nonfreezing solution with water for any definite temperature than either alcohol or glycerin. A 40 per cent, by volume, solution in water will give protection against freezing for the greater part of the United States. A 60 per cent mixture freezes at 56° below zero F.

The temperature of the cooling medium is an important consideration involving operation of the motor. The authorities agree that the most satisfactory temperature is one slightly below the boiling point of water; the automotive designers recommend a temperature between 175° and 200° F. Therefore, this requirement also controls the matter of heat output from the circulating liquid. Thermal conductivity and specific heat are minor considerations under the conditions.

Relative Value Octane Rating and Other Properties of Gasoline

The statement has been made to us that the antiknock rating is the most important specification when judging different gasolines but another person states that the distillation range is better for this purpose. Would you kindly discuss this? If there are any others that should be included we would appreciate your opinion.—F. I. A.

The fundamental requirement for gasoline, when considered from the standpoint of its utilization as motor fuel, is what is termed volatility as defined by the distillation range when determined by the standard distillation test. If gasoline were not a volatile liquid it could not be used in the automobile engine. There are other liquids that are volatile and combustible but they are not generally available at a low cost. The fact of suitable volatility is often lost sight of, when considering the properties of gasoline, largely because the refiner finds no difficulty in obtaining suitable crude oil and the refinery operations of distillation and cracking have been thoroughly adapted for the separation of a product of uniform volatility.

Associated with volatility is the heating value, but this is also fixed as an inherent property. The actual heat rating will in most gasolines fall between 20,500 and 22,000 B.t.u. per pound. At any rate, whatever the variation, the B.t.u. in commercial gasolines cannot be sufficient to make a difference in engine performance great enough to be considered.

Knock rating is probably more talked about and more important in marketing than any other characteristic of gasoline. This is because other properties are conceded; also, the method for determining the extent of the combustion knock and the system for expressing it in terms of octane numbers is of comparatively recent origin. An understanding of the knock tendency and its control has permitted the engine designer to make improvements that have added to the efficiency of the engine. There are very few gasolines that are really bad knockers. Modification of gasoline through the addition of a knock inhibitor and especially the perfection of the cracking operation, have made it possible to supply the consumer with a motor fuel which gives smooth operation, free from knock.

While the cracking process has been responsible for a volatile product of high octane rating, it has introduced what might be termed the third most important property of the modern gasoline; that is gum. This is said to cause more difficulty, when not properly controlled, than any other constituent of gasoline. Excessive gum causes deposits to form in the engine. These may result in clogging of the fuel line, carburetor difficulties, sticking of valves and other troubles. The refiner has given considerable study to the treatment of gasoline for gum removal, consequently the product from reputable and representative companies is so purified that the gum content is kept within reasonable limits.

In addition to these there are other properties that have to do with the quality of gasoline, but because they are carefully controlled by the refiner, the consumer seldom has to consider them; these are gravity, color, sulphur content, corrosion and doctor test.

Ichthyol Sulphonate as Inhibitor for Action of Sulphuric Acid

Have you information relative to the use of sulphonated mineral oils for the protection of metal in contact with sulphuric acid?—R. K. E.

A British patent describes a method for preparing ichthyol sulphonate and its use an an inhibitor against the action of sulphuric acid when cleaning castings, etc., as follows:

In pickling or cleaning metals with sulphuric acid a small proportion of a natural or synthetic ichthyol or ichthyol sulphonate is added to the acid to prevent attack of the metal. Natural ichthyol products are prepared by the sulphonation with concentrated sulphuric acid or oleum of sulphur-containing oils obtained by low temperature carbonization of certain oil shales. The acids or their soluble salts may be used.

Synthetic ichthyols or ichthyol sulphonates are prepared by sulphonation of the product obtained by treating mineral oils with sulphur at about 200° C. or by the sulphurization of sulphonated mineral oils. The ichthyol products contain at least 9 per cent of sulphur, probably in the form of sulphones and thiophens.

Dry or pasty products for addition to the pickling or cleaning acid may be obtained by mixing the ichthyol product with salt or a foam-producing agent.

Salt Contained in Petroleum, Its Removal and a Specification

The oil in some of our wells runs 0.6 to 0.9 per cent salt. The pipe line companies are objecting to this and are suggesting that the oil be chemically treated. What is the best way to treat oil for removal of salt? What is a reasonable percentage of salt?—C. W. E.

Salt is readily soluble in water, the pure sodium chloride being soluble 35.7 per cent in cold water and 39 per cent in water at the boiling point. The salt present in petroleum is not pure sodium chloride, other salts being present in addition; however, water slightly below 212° F. is the best-known solvent. The high temperature is not necessary and is not advisable if the oil is of high gravity and low boiling point, because there is only a slight increase in the solubility at the higher temperature and a large part of the more volatile products is lost.

The conventional method for salt removal is to shower or wash the oil with water. When large quantities of salt are to be removed the water and oil may be run counter-current through a series of pipes or tanks. In some cases the oil is partially emulsified and in such cases it is necessary to break the emulsion, then add a chemical, such as tretolite, before completing the washing operation.

There is no standard specification for salt content, the requirement of the purchasing companies usually being limited to the water and sediment; the sediment frequently being limited at 0.5 per cent. This would of course fix the limit of any solid material, including salt crystals at 0.5 per cent.

Salt and magnesium chloride, which is usually present, are especially objectionable compounds to have present in a crude oil, because they decompose under the influence of heat to form hydrochloric acid. Since this acid is very corrosive it will do much damage to the equipment. The best grades of oil are entirely free from salt. Salt is not soluble in oil, therefore, if all water is removed no salt will be present.

The common application of a salt specification is made with reference to oil recovered from tank settlings and emulsified oils. For these, the salt content of the recovered oil is limited to 5 to 30 pounds per 1,000 bbls. A similar limitation would appear to be satisfactory for any crude oil.

Inhibiting Chemicals to Prevent Deposits on Spark Plugs

I am interested in the manufacture of spark plugs. What is being done to prevent deposits of lead oxide from some gasolines on the spark plugs and injury to the valves?—R. B. V.

We have no information that lead as now used in gasoline causes deposits to form on spark plugs, etc. Some years ago when the lead fluid was first used, some trouble resulted from lead deposits, but this was soon taken care of by including ethylene dibromide in the solution. This substance prevents the deposition of lead on the spark plugs and valve seats. Any lead compound formed should be carried away in the exhaust.

Another substance, known as Halowax oil, is present in the lead solution which serves to keep the surfaces clean, lubricates the exhaust valve stems, prevents burning of the metal, and also sticking of the valves.

NATURAL GAS DEVELOPMENTS

Court Says Commission Used Improper Method

ALBANY, N. Y., Jan. 20.—The Consolidated Gas Co. of New York obtained a temporary victory when Supreme Court Justice Gilbert V. Schenck granted its application seeking a stay and suspension of orders of the Public Service Commission reducing rates, pending determination of certiorari proceedings for a review by the Appellate Division of the commission's orders.

The Public Service Commission held that a 6 per cent per annum earning was a reasonable return and that it was possible for the company to make a reduction in rates. Justice Schenck held that "the formula adopted by the commission for arriving at a determination of the amount of reduction of rates is sanctioned neither by statute nor judicial decision."

"It is undoubtedly true," according to the decision, "that these petitioners have accumulated a very large surplus, but the law does not require utilities to give up, for the benefit of future consumers, any part of the surplus acumulated from past operations."

The company is ordered to file a bond approved by the court for protection of the company's consumers in event of the Appellate Division sustaining the orders and determination of the Public Service Commission.

Kansas Court Decision for Ozark Pipe Line Co.

PARSONS, Kans., Jan. 20. — Union Public Service Co., failed in District Court to prevent the Ozark Pipe Line Co., a Parsons company, from selling gas here. Judge L. E. Goodrich sustained the old Kansas Public Service Commission in granting a certificate of convenience and authority to transact business as a public utility in Labette County to the Ozark company.

The Ozark company was developed by Fred Garrison, of Parsons. Its affiliate, the Citizens Gas Co., is building a distribution system alongside the Union company system in a residence section and now has more than 200 domestic users, according to company officials, in addition to three large consumers. Its domestic rate is 40 cents a thousand feet straight. Union Public Service Co.'s rate is $1.25 for the first thousand and 50 cents a thousand above that. The Ozark company brings gas to Parsons from a field southwest of here.

GUTHRIE GAS VOTE

Guthrie, Okla., city council has approved an election on a proposal to vote bonds to build or buy a municipal gas plant. Date of the election and the amount of bonds was not set. The city may buy the Western Service Corp. plant when the property goes on the block March 30, councilmen said.

SARNIA GAS CONTRACT

SARNIA, Ontario, Jan. 20.—The Union Gas Co. of Canada has received a contract from the Dominion Alloy Steel Corp. to supply gas to the company's plant south of Sarnia. The gas company has laid a mile of pipe to deliver gas from its main transmission line to the plant.

NEW CARBON PLANT

LOS ANGELES, Calif., Jan. 20.—Natural gas from the Lake Tulare region will be used to make carbon black by a new process. Bids for the construction are being received by Commonwealth Gas Co. of Los Angeles.

Gas Development in Fields of Michigan Was Feature of Industry in 1933

By PAUL A. ELLIOTT

The year 1933 set a new record in natural gas developments in Michigan with the discovery of a field in Austin Township, Mecosta County, now the largest in the State, and the extension of both the Broomfield and Vernon Township Pools in Isabella County, now second and third largest, respectively.

James M. and W. C. Taggart opened the new field with No. 1, on the James H. Barton lease, NW SW SW Section 11-14n-9w, Austin Township, when it made about 4,000,000 feet a day open flow in the Michigan series encountered at 1,481-85 feet.

It was carried to the Traverse and Dundee for oil production but was unsuccessful at a total depth of 3,790 feet so was plugged back for gas. Two other wells, one in Section 11 and the other in Section 10, made 14,000,000 feet and 4,000,000 feet, respectively, before Taggart Brothers' No. 3, on the Robert S. Fish lease, C SE SE Section 4-14n-9w, Austin Township, set the State's new record of 27,500,000 feet a day. (This record also was broken January 10, 1934, by the completion of No. 4 Robert S. Fish, in Section 4, for 34,000,000 feet a day.)

An extension of the Vernon Township gas pool in the Michigan series was indicated early in the year when flow of 2,000,000 to 3,000,000 feet a day were encountered in wells cased off and drilled to the Dundee for oil. Toward the close of the year several wells were being drilled to be completed as gassers as new markets for gas were seen.

The Broomfield Pool to which Consumers Power Co. laid a 40-mile line from the city of Midland early in the year also was extended about a mile eastward, half a mile to the southeast and half a mile north by three new wells, R. D. Malcolm's No. 1 Cook, SW SW NE Section 2-14n-6w; Pure Oil Co.'s No. 1 Winters, C NE SW Section 10, and D. F. Jones' No. 1 Wonser, W NW NE Section 2, which respectively made 2,000,000 feet, 1,250,000 feet and 4,000,000 feet a day. Several additional wells also were drilling in and near proved territory in Broomfield Township as the year closed because of an increasing demand in several available markets.

Shortly before the close of the year the following estimated totals for five Michigan gas pools were announced: Broomfield, 17 wells, 7,500 acres proved, daily potential 61,000,000 feet, and reserves 22,000,000,000 feet; Vernon, 8 wells, 3,000 acres, 30,000,000 feet daily and 8,500,000,000 feet reserves; Austin Township, 4 wells, 1,000 acres proved, 51,000,000 feet potential and 3,000,000,000 feet estimated reserves; Clare County, 7 wells, 500 acres, 25,000,000 feet daily potential and 1,500,000,000 feet reserves, and Elba Township, Gratiot County, 4 wells, 200 acres, 5,000,000 feet daily potential and 700,000,000 feet estimated reserves. These figures are based on recovery to atmospheric pressure, or 15 pounds.

The aggregate estimated reserves of 35,700,000,000 feet computed about December 1 also has been increased to an estimated 42,700,000,000 feet by the new 1934 well.

Rock pressures in the five fields follow: Broomfield, 580 pounds; Vernon, 560 pounds; Austin, 500 pounds; Clare, 590 pounds, and Elba 200 pounds.

Southwestern Gas Measurement Short Course Date Set for April 24, 25 and 26

Back row left to right: J. H. Felgar, Dean, College of Engineering, University of Oklahoma; Gilbert Estill, Oklahoma Natural Gas Co., Tulsa, Okla.; R. D. Turner, Skelly Oil Co., Tulsa, Okla.; D. C. Williams, Kay County Gas Co., Ponca City, Okla.; E. E. Stovall, Lone Star Gas Co., Dallas, Texas. Front row left to right: B. L. Maulsby, Oklahoma Natural Gas Co., Tulsa, Okla.; W. R. McLaughlin, Arkansas Natural Gas Corp., Shreveport, La.; W. H. Carson, Director, School of Natural Gas Engrg., University of Oklahoma; E. F. McKay, Oklahoma Utilities Association, Oklahoma City, Okla.; A. J. Kerr, Midwest Equitable Meter Co., Tulsa, Okla.; J. J. Hassler, Corporation Commission, State Capitol, Oklahoma City, Oklahoma

The general committee in charge of the Southwestern Gas Measurement Short Course has selected April 24, 25 and 26 as the dates for the 1934 course. This is a project of the College of Engineering of the University of Oklahoma, of which J. H. Felgar is dean, and the course is given each year in the engineering building on the university campus at Norman, Okla.

Gas measuring equipment is installed for exhibition and demonstration by the leading manufacturers of such equipment, and factory and sales representatives are on hand to demonstrate the same. These and university professors of mechanical engineering are the instructors for this school under direction of Prof. W. H. Carson. Attendance at the school embraces employes of oil and gas and gasoline manufacturing companies who are concerned with the subject of measurement of either dry or casinghead gas.

The declared purpose of the school is to increase the accuracy of measurement and the efficiency of regulation to the end that the public may be better served, the dealings between buyer and seller put on a more accurate and equitable basis, and that correct information regarding the engineering and practical problems involved be disseminated among the men in the industry.

The chairman of the general committee in charge of the 1934 course is W. R. McLaughlin of the Arkansas Natural Gas Corp., Shreveport, La. R. D. Turner of the Skelly Oil Co., Tulsa, will be in charge of exhibits this year, and D. C. Williams of the Kay County Gas Co., Ponca City, Okla., is chairman of the program committee. This project was established in 1924 and has had a registration in some years exceeding 400. On account of economic conditions it was omitted in 1933.

Seven prizes are awarded each year for papers written on the topic "What I Learned at the Meter School." The winners of the prize papers, submitted after the last course, were the following:

First prize, $15—B. K. Golson, Lone Star Gas Co., Dallas, Tex. Second prize, $10—E. C. McAninch, Oklahoma Natural Gas Corp., Tulsa. Five $5 prizes—Conrad A. Franks, gasoline department, Amerada Petroleum Corp., Tulsa; George Murray, Ponca City Gas Distributing Co., Ponca City, Okla.; Lee Overstreet, Kansas-Osage Gas Co., Ponca City, Okla.; J. B. Faust, Lone Star Gas Co., Dallas, Tex.; Ralph McNutt, Oklahoma Natural Gas Corp., Tulsa.

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FIELD PROBLEMS FROM READERS

Edited by Thomas F. Smiley

This department is conducted in order that men connected with the drilling, producing and transporting branches of the petroleum industry may obtain aid in solving problems that confront them in their work. Readers are invited to send questions freely. These questions will be placed in the hands of persons capable of answering them authoritatively, and the answers, based on the best available information, will be published.

Each question should give as much detail as possible, especially if it involves depth of sands, types of sands and operations on adjoining or nearby properties. The source of questions will be considered confidential, and only the initials of the sender will be published. Questions involving patented processes, intricate formulas or estimates of cost cannot be answered. If an immediate answer is important, one will be given by mail when the writer requests it.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or improved old ones.

Acid Treatment Not to Be Tried by Men Without Experience

I have noticed references in your magazine to treating the producing horizon of a producing well with acid. I wish you would tell me if only wells producing from lime are treated thus or whether wells producing from sand also respond to this treatment. In West Virginia, I am told, acid treatment has worked out very successfully, but the experiment described to me was made on lime wells. The question in my mind is whether treating these very light Pennsylvania wells with acid would benefit them. Any information you can give me will be appreciated.—M. B. M.

Most wells treated with acid have been producing from limestone. Increased production has followed in most instances and the procedure has been applied to wells in all parts of this country and abroad. This treatment is based upon the solubility of calcareous material in hydrochloric acid. There is nothing new in the present knowledge about this reaction, but the method of applying the acid does constitute a patentable procedure, and several patents covering the process of acid-treating wells have been granted.

Specialists in this method of increasing oil recovery have made tests on sand wells, and the Pennsylvania sand formations presumably have been included. Proper protection of wells during application of the acid treatment is an involved problem, attended by hazards which, aside from the matter of patent infringement, point to the wisdom of turning the job over to men familiar with its intricacies.

Use of the acid treatment by persons without experience and a thorough knowledge of possible reactions can result in damage to a producer. This damage may not be apparent immediately, and the treatment may seem to have been highly successful, but with the passing time serious impairment may be revealed.

It is assumed that you have read the several articles in The Oil and Gas Journal on this subject. Referring specifically to your question, it is believed your safest course is to get in touch with specialists in acid treatment and obtain the counsel of men trained in all the complexities of this subject.

Should Dry Holes Tend to Shake Confidence in Geologists?

So far as I can see there is just as high a percentage of dry holes being drilled today as there ever was. What becomes of the claims of geologists to the effect that they can tell where oil is and wher it isn't? As a matter of fact, haven't we been giving the petroleum geologist a little too high a rating? If there is any good explanation of the continued drilling of dry holes in the face of all the geological activity we read about, what is it?—E. N. I.

Just a word first with reference to your evident attitude toward the petroleum geologist. You ask what becomes of the claims of geologists that they can tell where oil is. The answer is that nothing becomes of them, because there are no such claims, so far as this department knows. If E. N. I. can point to an instance in which any geologist of recognized standing ever has claimed ability to tell where oil is, this department will thank him for doing so.

As to the continued high percentage of dry holes notwithstanding the work of geologists, that subject is discussed as follows by Frederic H. Lahee in a paper on "Petroleum Geology," read before the American Association of Petroleum Geologists:

"Wildcat wells are of peculiar interest to geologists. Although many holes, located without any sound scientific reason, have opened new oil pools, and sometimes large pools, nevertheless a majority of the pools discovered in the last 15 or 20 years have been found by holes located on some kind of geologic evidence. We have to admit that in some localities the geologic evidence is weak; that even when a good closed structure is found it may not contain sands or other porous rocks that might hold oil; and that where a suitable reservoir rock is present on a well-formed structure, this porous rock may yet be barren of oil. However, in spite of these and other unseen complexities, experience has amply demonstrated that geology applied to the finding of petroleum has considerably reduced the risk of failure.

"Notwithstanding the assistance rendered by geology, a remarkably large percentage of wildcat wells are dry. We have gathered some statistics on completed oil and gas wells and abandoned dry holes drilled in the 25 years from 1908 to 1932, inclusive. Eight important oil-producing states or districts were considered. In California, during these 25 years, the percentage of dry holes was 17; in the group of Appalachian states, including New York, Pennsylvania, West Virginia, Kentucky and southeastern and Central Ohio, it was 18; and so on, to a maximum of 36 per cent in the combined Gulf Coast (salt dome) area of Louisiana and Texas.

"There are several factors which contribute toward the variations in these percentage figures. An excessive amount of drilling within the limits of a pool, close spacing of wells within the area of a pool, and the drilling of several wells at the same location to reach several pay sands at different depths in the same pool, all tend to reduce the percentage of dry holes in a given area.

"On the other hand, this percentage is augmented by increased depth of drilling with its attendant hazards; by reduction of inside pool drilling due to overproduction, unfavorable marketing conditions, proration, and wider well spacing; by the spotted or uneven character of the pay formation, as in the Zwolle Field of Louisiana, in the Bend lime of North Central Texas, in the Madison lime of the Kevin-Sunburst Field of Montana, and in many other fields that might be cited; by highly complicated structural conditions, as in the Gulf Coast salt domes; by the rapid expansion of wildcatting, and especially of indiscriminate wildcatting, which usually follows the discovery of a new pool; by speedy and careless drilling; by forced drilling to hold leases which may have only a bare chance of yielding oil; and by the fact, already emphasized, that reliable surface evidences of geologic structure, as yet untested by drilling, are more and more difficult to find.

"It is evident that the factors tending to increase the dry hole percentage are more numerous and more likely to be effective than those acting in the opposite direction."

Why Was It Called That?

NAPHTHA JAG

Workers in industries using benzine, sometimes called naphtha-gasoline, for cleaning purposes and thus subjected to the fumes rising with the evaporation of this liquid, are affected sometimes by a mild form of intoxication jocularly referred to as a "naphtha jag." The befuddled, tipsy condition brought about is said to be much like the moony exhiliaration produced by the beverages which the Eighteenth Amendment sought to banish but which have come back into style again. Workmen entering tanks that have contained naphtha or gasoline are occasionally victims of the naphtha jag.

Aneroid Barometer Found Useful in Exploratory Oil Surveys

It strikes me in the light of what I can find out that the aneroid barometer is used very little in the mapping of prospective oil fields. I would suppose it to be a valuable instrument in such work. Is it falling into disuse? If it is, what is the reason?—T. E. N.

The relatively small use of the aneroid barometer in field work is attributed to a feeling of doubt concerning the accuracy of the instrument. As a matter of fact, the aneroid is a dependable tool in the uses for which it is more particularly designed. After systematic use of it in reconnaissance work in the sub-Himalayan region Dr. T. Sutton Bowman found it of distinct value in determination of differential heights of moderate degree and their use as vertical bases for ascertaining horizontal distances in a rough method of sketch survey developed to meet the necessity of sketch mapping in the steep, broken, wooded country. Doctor Bowman's own conclusions regarding the instrument follow:

The aneroid barometer can be used with some precision for the determination of local differences of height in tropical and subtropical countries if proper precautions are taken in the observations and computations.

In steep broken country providing appreciable differences of height and vertical angles between points, differences of height determined by the aneroid can be combined with vertical angles obtained with an Abney level to measure horizontal differences for the control of sketch mapping.

The usefulness of this method is confined to steep broken country in the tropics or subtropics, and is limited to the control of isolated sketch mapping or to the filling in of rough details within a more rigid framework. The errors involved are too great to permit of extended work without further control.

The advantages of the method are that it permits a single handed explorer to construct fairly accurate sketch maps quickly, with no necessity for base measurement, bulky instruments, assistants as staff holders, etc. The only instruments required are an aneroid, swing thermometer, Abney level and prismatic compass, or preferably a very light plane table. To the exploring geologist it permits him to make sufficiently accurate sketch maps with instruments likely to be carried as part of his normal field kit, single-handed and without occupying too much time.

The method possesses advantages over the use of an infantry pattern rangefinder in the matter of bulk of instruments, and the fact that errors do not increase rapidly with the range. The rangefinder is superior in showing much lower linear errors at small ranges, and its applicability to country of low relief (to which the present method is quite unsuited), in its applicability to any latitude or climate, and in permitting ranges to be taken without the necessity of visiting any other points. The method is therefore put forward as an emergency method of fair accuracy.

A paper by Doctor Bowman entitled "The Aneroid Barometer in Reconnaissance Work" may be obtained from the secretary of the Institution of Petroleum Technologists, Aldine House, Bedford Street, Strand, London W. C. 2, England, for 1s.

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PERSONAL PARAGRAPHS

H. L. HUNT, independent oil operator of Tyler, Tex., spent a few days in Houston on business.

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DR. P. S. GRIFFITH, independent oil operator of Houston, Tex., has returned from a visit in Colorado.

• • •

H. L. GLENN has been promoted to the position as manager of the Los Angeles, Calif., district of the General Petroleum Corporation.

• • •

GEORGE D. FOSTER, vice president of the Devonian Oil Company, of Tulsa, is spending a few days on the Gulf Coast on business.

• • •

JOHN I. MOORE and P. D. MOORE, of the Moore Petroleum Company, San Angelo, Tex., have returned from a trip to Owensville, Ind., where they visited their parents.

• • •

EARL PENN, foreman for the Sinclair Prairie Oil Company at Hobbs, N. Mex., has been transferred to the Winkler County Field, Texas, and JOHN REEVES replaces him in the Hobbs Field.

• • •

D. D. CHRISTNER, division geologist, and F. D. BALLENTINE, in charge of the land department for the Continental Oil Company, both of Fort Worth, Tex., made a trip to the main offices of the company at Ponca City, Okla., last week.

• • •

W. L. SULLIVAN, representing the Carter Oil Company's surplus material department in Texas, was in Tulsa last week from his Dallas headquarters.

• • •

WILLIAM R. THAWLEY, chief scout of the Gypsy Oil Company at Tulsa, had his tonsils removed last week and is slowly recuperating from the operation.

• • •

FRANK YERKES, of Petrolia, Ontario, for many years a driller in foreign fields, on January 15, gave an address to the Petrolia Lions Club, dealing with drilling methods.

• • •

R. R. PORTERFIELD, in charge of the Devonian Oil Company's office at Midland, Tex., was married to MRS. ALICE MASON, member of the pioneer Haley family, this week.

• • •

T. C. SKEEN, assistant to the president, Columbian Steel Tank Company, Kansas City, Mo., is making his first trip through the Mid-Continent territory, after his recent illness, and was in Tulsa this week.

• • •

F. L. KUYKENDALL, Fort Worth, Tex., attorney, has moved to Austin, Tex., to assume duties with the gas utilities division of the Railroad Commission. Mr. Kuykendall was formerly located at Albany, Tex.

• • •

J. C. DALLAS, for some years actively interested in the Turner Valley Field as head of the Dallas Oil Company and Calmont Oils, Ltd., is undertaking development of the Princess Royal Gold Mines property in British Columbia.

• • •

A. K. RIDDLE, general superintendent, Shell Pipe Line Company, St. Louis, Mo., is visiting in Houston, Tex. His trip from St. Louis took him by way of Cushing, Okla., Hobbs, N. Mex., and Austin, Tex. CARL MARQUIS, superintendent of the Texas division, accompanied him from Austin.

J. T. MULLINS, independent oil operator of Houston, Tex., is now making his home in the East Texas Field.

• • •

J. B. WHISENANT and JOHN TRENCHARD, geologists and petroleum engineers, are now located in the Alamo National Bank Building, San Antonio, Tex.

• • •

FREDERICK B. HENDERSON, advertising manager of the Tide Water Oil Company in the Mid-Continent territory, has been made general advertising manager with headquarters at New York City. He will leave in a few days for his new post. Mr. Henderson has been a resident of Tulsa for three years.

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RALPH ROARK, production superintendent of the northern division of the Shell Petroleum Corporation, Tulsa, with his wife, is leaving on January 26 for a four months' trip to Europe. He will spend about six weeks at the headquarters of the Royal Dutch-Shell Company at The Hague, Holland, and then visit the oil field of Rumania, Germany and other European countries. The latter part of the trip will be devoted to visiting England, Scotland and France for pleasure only, and the return to Tulsa will be made about June 1. REID W. BOND will assume Mr. Roark's duties while he is away.

J. R. SMITH, independent oil operator of Dallas, Tex., is in Houston, Tex., for a few days.

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FRED I. GETTY of the Getty Screen Company, Jennings, La., spent a few days in Houston, Tex., on business.

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J. G. HAMMOND, independent oil operator of Fort Worth, Tex., accompanied by his wife, are spending a few days in Houston, Tex.

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J. E. GOBLE, manager of the export division of the Oil Well Supply Company, has returned to New York City from a trip to South American points.

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JAMES S. NOLAND, in charge of the Barnsdall Oil Company's offices at Midland, Tex., has been named chairman of the Roosevelt Birthday Ball to be given in that city on January 30.

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CHARLES KISSINGER, in the producing department of the Sinclair Prairie Oil Company, has been moved to Eastland from Fort Worth, Tex. He formerly was located at Troup, Tex., with the company.

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PAUL L. BROOKS, sales manager, the Parkersburg Rig & Reel Company, Parkersburg, W. Va., was in Wichita, Kans., and Tulsa last week starting a trip to the various branches of his company in the Mid-Continent area.

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J. J. RUSSELL, geologist, and LOUIS LINK, land man, are in charge of the newly opened office of the Texas Pacific Coal & Oil Company at Midland, Tex.

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FRANK D. MANNING, formerly with Continental Oil Company, has become engineer in the Oklahoma survey being conducted by the U. S. Geodetic Survey.

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RAYMOND BAKER, New York City, assistant to the vice president in charge of production, the Texas Company, has been visiting in Houston, Tex., on business.

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E. W. HOUGH, vice president of the Naylor Pipe Company, Chicago, and L. S. (SPIDER) ALLEN, district manager, Tulsa, have completed a business trip to the Panhandle of Texas, Dallas, and Shreveport, La.

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JOHN R. SUMAN, vice president, Humble Oil & Refining Company, Houston, Tex., was the principal speaker of the Houston Geological Society, January 18. His subject was the Conroe relief well.

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LEWIS A. ROBERTSON, president of the Zenith Gas Corporation, who has been making his home in Houston, Tex., has moved to Woodward, Okla., where he will make his headquarters to look after properties.

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O. P. ESTES, a former city police judge at Oklahoma City, Okla., has joined FRANK ARGOOD, an independent operator of Oklahoma City, in the blocking and development of leases in the Bebee area of Pontotoc County.

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FRANK A. HERALD was named president, CLAUDE F. DALLY was elected vice president, and THOMAS B. ROMINE, geologist for the Texas Pacific Coal & Oil Company, was named secretary of the Fort Worth Geological Society on January 15.

DO YOU REMEMBER?

From The Oil and Gas Journal Files

25 Years Ago

January 24, 1909

Wichita Falls, Tex., expects to have natural gas soon from the Petrolia, Tex., Field.

E. C. Lufkin has resigned as a manager of the Snow Pump Works to become manager of the natural gas department of the Texas Co., with headquarters in Fort Worth.

William Trundy Leman, manager of the Texas Co.'s western sales division, and Miss Ella Z. Klingler of St. Petersburg, Pa., were married January 21.

Cardenius Flavius King is sentenced to 10 years in prison by a Massachusetts judge for absconding with funds of the King-Crowther Corp., a Texas oil bubble, which he had organized. Cardenius Flavius came back from India and gave himself up, asserting that he was an innocent victim of the wiles of Tom Lawson. The jury did not believe him.

The Nowata and Rogers County Field in Oklahoma, otherwise known as the Cherokee shallow sand field, is producing 55,000 bbls. per day. Four thousand seven hundred wells have been completed in it in less than six years.

20 Years Ago

January 29, 1914

M. J. Kirwin of Coalinga, Calif., has been appointed oil well inspector of the Coalinga Field at a salary of $150 per month and expenses.

H. C. Folger, president of the Standard Oil Co. of New York, is a direct descendent of Peter Folger, who came to America from Holland in 1663 and settled in Nantucket, Mass.

Vinton Petroleum Co. brings in a 7,000-bbl. well in the Vinton, La., Pool.

One of the companies operating in the Caddo Field of Louisiana is Nederlandsche Maatschappij tot het verichten van Mijnbouwkundige Werken, but in Caddo it is known as the Koster Oil Co.

10 Years Ago

January 24, 1923

Pennsylvania grade oil is posted at $3.50 to $4 per barrel; Mid-Continent oil from $1.15 to $1.75; Gulf Coast, $1.25 and $1.50; California, 85 cents to $1.01.

A. G. Maguire of the Bartles-Maguire Oil Co. is in Europe on a pleasure trip, and J. J. Taxman of the Taxman Refining Co. left January 19 for Europe.

Tidal Osage Oil Co. has a 6,000-bbl. well in the Burbank, Okla., Field.

The Craig Pool in Moffat County, Colorado, is opened by the Texas Co. and Transcontinental Oil Co.'s joint test at 3,805 feet. The well flowed 400 bbls. in nine hours.

Salt Creek Pool in Wyoming is producing 122,000 bbls. a day, and at the present price of $1.20 per barrel the oil is worth $146,400 per day.

C. B. RICHARDSON, of Cheyenne, Wyo., is in Washington, D. C.

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GEORGE W. MARLAND, Ponca City, Okla., is visiting in Houston, Tex.

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H. B. MAYES has been made representative of Johnson-March Corporation in Houston territory.

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C. D. JOHNSON, geologist, who has been in northern Montana oil fields the past few months, has returned to Denver, Colo.

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R. B. PAXSON, chief geologist, Gulf Coast division, Continental Oil Company, Houston, Tex., spent a few days in Louisiana.

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MAJ. GRENVILLE G. HOWARD, of Shelby, Mont., petroleum geologist, recently made a trip to Bellingham. Wash., accompanied by L. R. HANNAH, of Shelby.

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J. B. GALBRAITH, general auditor of the Stanolind Oil & Gas Company, who has been in Casper, Wyo., for some time, has returned to his headquarters in Tulsa.

• • •

R. G. TAYLOR, of Denver, Colo., J. B. BARNES, of Cheyenne, Wyo., and B. J. ERWIN, of Douglas, were in Casper, Wyo., closing up some matters with SIDNEY H. KEOUGHAN.

• • •

JOHN KANE, vice president, R. K. LINN, vice president, and J. K. KNOX, head of the geological department of Phillips Petroleum Company, of Bartlesville, Okla., spent a few days in Houston, Tex., visiting the Gulf Coast.

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WENDELL STEPHENS, counsel for the Ohio Oil Company with offices in Casper, Wyo., made a trip to Great Falls, Mont., over the week-end.

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T. N. HUNT, president of the Authorized Appleman Bit Service Company, Inc., Houston, Tex., has been in Louisiana Gulf Coast on business.

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H. HARVEY and H. H. HENDERSON, independent operators who have been working in the Gulf Coast the last year, have returned to San Antonio, Tex., their former home.

• • •

L. O. KOEN, president of W-K-M Co., Houston, Tex., who was injured recently in an automobile accident, and confined to the hospital and his home, is now up and able to return to his office.

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DORSEY E. STRAITIFF, president and general manager of the Rocky Mountain Drilling Company, has returned to Casper, Wyo., from an extended trip through Colorado, Texas and New Mexico.

• • •

PAUL MILLS, Tulsa, operator, has moved to Houston, Tex., opening offices in the Second National Bank Building. Mr. Mills has been working in Houston, Tex., and the Gulf Coast the last year.

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GOVERNOR LESLIE A. MILLER of Wyoming, president and general manager of the Chief Oil Company, has returned to Cheyenne after a short vacation spent in California and an ocean voyage to New York from Los Angeles via the Panama Canal. He stopped over in Washington.

• • •

C. R. BICKEL, production superintendent of the Shell Petroleum Corporation at McPherson, Kans., was the principal speaker at the Kansas Geological Society meeting on January 24, at Wichita. He talked on "The Possibilities of Reconditioning of Wells in the Voshell Area."

• • •

J. W. VAN DYKE, Philadelphia, Pa., chairman of the board of the Atlantic Refining Company, accompanied by R. C. TUTTLE, manager of the marine department of the Atlantic company, left Saturday, January 20, on the Bremen of the North German Lloyd line for European points.

Heads Large California Company

George Machris, president of the Wilshire Oil Company, was born in Los Angeles 55 years ago and is the oldest of three sons. Mr. Machris, with his brothers, Alfred and Victor, founded the Wilshire Oil Company in 1915, although the company was not incorporated until 1919. Substantial progress has been made,, with the result that the Wilshire is perhaps the largest independent producer and refiner in California at the present time.

GEORGE MACHRIS

The Wilshire has a number of affiliated companies, the most successful group of which includes the Ambassador Petroleum Company, Bandini Petroleum Company, Commodore Petroleum Company, Wilshire Annex Oil Company, Carson Oil Corporation, Reliance Oil Company and Buckeye Union Oil Company, operating principally in the Santa Fe Springs and Huntington Beach Fields of Los Angeles Basin.

As a result of aggressive development at Santa Fe Springs following discovery of that field in 1921, and subsequent work in other areas, the Wilshire has a large storage of crude and refined oil and a market outlet for approximately 55,000,000 gallons of gasoline in California yearly. Tentative plans have been completed for an expansion program on the Pacific Coast and it is expected the company will begin distribution in northern California and in Washington and Oregon in the future.

R. F. CLEMENT, of Tulsa, chief clerk in the production department of the Oklahoma-Kansas division of the Texas Company, has been promoted to the position of assistant chief accountant of the production division of the Texas Company, at Houston, Tex.

• • •

FRANK H. HOWARD, New York City, president of the Standard Oil Development Company, and MRS. HOWARD, returned Friday, January 19, from a trip to the West Indies on Saturnia of the Italian line.

• • •

FRED C. DAVIES, of the General Petroleum Corporation, has been transferred from the company's headquarters in Seattle, Wash., to Los Angeles, Calif., to become divisional office manager in Los Angeles under a general sales reorganization.

• • •

A. A. SANTALOV, who for the past five years has been vice president of the Amtorg Trading Corporation in charge of the petroleum division, accompanied by MRS. SANTALOV, left New York City, Saturday, January 20, on the Bremen of the North German Lloyd line. He is returning to Russia where he will continue to be connected with the oil operations of the U.S.S.R.

• • •

J. A. BERMINGHAM has been elected vice president in charge of production of the Texas Company of California; R. T. HERNDON, vice president in charge of sales; L. R. HOLMES, vice president in charge of refining, and H. W. DODGE, general vice president. Mr. Dodge, in addition to being vice president of the Texas Company of California, is vice president and sales manager of the Texas Company of New York.

• • •

J. W. MEEHAN, of Blue Island, an industrial chemist, has arrived in Mount Pleasant, Mich., to direct preliminary operations of the Pure Oil Company's new brine disposal plant in Porter Township. A committee comprised of GEORGE W. MYERS, of the Sun Oil Company, Toledo, Ohio, and K. H. SCHILLINGS, of the Shell Petroleum Corporation, Saginaw, Mich., is co-operating with the state department in making a study of the best methods of disposing of brine.

JACK O'BRIAN, of the Pittsburgh, Pa., office of the Gulf Refining Company, is visiting in Houston, Tex.

• • •

ROBERT G. MUELLER, president of the Gray Tool Company, Houston, Tex., was a Fort Worth, Tex., visitor during the week.

• • •

JOE J. CRUMP, independent oil operator of Midland, Tex., has been elected a director of the First National Bank of that city.

• • •

GEORGE FOSTER, vice president of the Devonian Oil Company, Houston, Tex., was a Fort Worth, Tex., business visitor during the week.

• • •

JOHN MABEE, independent producer of Tulsa, and party made a one-stop flight from there to Miami, Fla., to attend the aviation meet.

• • •

M. GLENN MILLER, who has been assistant chief clerk of the producing department of the Texas Company, at Tulsa, has been made chief clerk.

• • •

W. I. WOODWARD, of San Antonio, Tex., vice president and general manager of the Zenith Gas Corporation, has moved to Woodward, Okla.

• • •

MR. AND MRS. GEORGE M. CHURCH, Fort Worth, Tex., are making an indefinite stay at Pasadena, Calif. Mr. Church is an independent operator.

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JACK LOFFLAND, drilling contractor of Fort Worth, Tex., entertained a group of oil men on a hunting trip south of Del Rio, Tex., into Mexico, during the past week.

• • •

ALBERT P. DePUY, formerly editor and advertising manager of the Universal Engineer, has been appointed advertising manager of the Metropolitan Refining Company, Inc., Long Island City, N. Y.

• • •

ANDREW RUTHERFORD, who has been in charge of the Oil City Royalties test in the Waterton Lakes area, southwestern Alberta, is spending the winter in Petrolia, Ontario, and other eastern points.

• • •

J. R. JACKSON, who serviced the first car in Fort Worth, Tex., and who has been superintendent of service stations in the city for the Magnolia Petroleum Company since 1920, retired from active service on January 1.

• • •

WENDELL BEDICHECK, former editor of the Big Spring Daily Herald and president of the Chamber of Commerce, Big Spring, Tex., has been assigned to direct a campaign in that section of West Texas for products of the Cosden Oil Company.

• • •

RALPH B. LLOYD, president of the Oil Producers Sales Agency, and a member of the Central Committee of California Oil Producers, has been granted an indefinite leave of absence in order that he may make one of his periodical visits to China where he is a trustee on the board of one of the missionary colleges.

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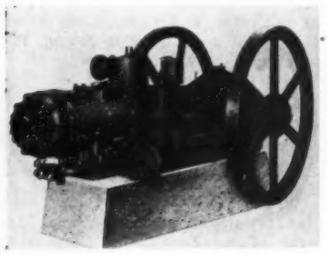
C. E. OLMSTED has been elected president and general manager of the Texas Company of California, having been advanced at the annual meeting from vice president and general manager to his present position. Mr. Olmsted is well known in California oil circles, as he entered the employ of the California Petroleum Corporation in October, 1923, and became vice president in charge of transportation and refining operations of that company in July, 1924. Prior to that time he had been connected with the Texas Company of Delaware for five years as refinery engineer and superintendent of plants. Upon the acquisition of California Petroleum Corporation by the Texas Corporation in 1928, Mr. Olmsted remained as vice president of the Texas Company of California and was appointed general manager in June, 1929.

NEW AND IMPROVED EQUIPMENT

Quick Changes Made With Tico Gas and Oil Engines

Drillers in East Texas and other localities where a dual operated engine is required will be interested in the new Tico Type C 12½"x16" convertible gas and oil engine, put on the market by



the Titusville Iron Works Co., Titusville, Pa. This engine can be changed from gas to oil or from oil to gas in two hours to meet the varying fuel requirements and has been developed to meet the heaviest demands of swabbing, drilling and deep-well pumping.

The full Diesel engine construction makes unusually efficient and economical operation possible with a good grade of crude oil. The fuel injector and pump are controlled by a special flyball governor which not only regulates the speed of the engine but also delivers the exact amount of fuel to the cylinder at varying loads. This is governed by a regulating valve. All surplus oil rejected by this valve is piped to a small reservoir or recovery tank.

According to the manufacturer, weight and strength have been added throughout. The main frame is exceptionally rugged to withstand any stress imposed on it for any speeds and is said to be free from vibration.

The cylinder has a long apron projecting into the frame, secured with a heavy flange and twelve 1¼-inch alloy steel bolts. The piston rod, 2½ inches in diameter, is equipped with a double seal metallic piston rod packing box of the latest Garlock design, serving as an oil wiper and vacuum seal.

The shaft diameters at bearings are 6 inches and are equipped with four heavy duty Timken roller bearings. The crankpin diameter is 6½ inches and that of the cross pin 4 inches.

A special air valve is located on top of the main frame, having four ground steel discs one-sixteenth inch thick with one-sixteenth inch lift and large area. The valve seat and keeper are made of accurately machined alloy cast steel. The speed of the engine can be controlled either by hand adjustment or remote manipulation from the derrick with a speed range of 160 to 350 r.p.m.

NEW SUPERSENSITIVE RELAY

The American Instrument Co., 774-776 Girard Street, N.W., Washington, D. C., announces a new supersensitive mechanical relay for use with thermoregulators, contact-making instruments and other low-current devices. An operating current of 6.9 milliamperes at 6 volts d.c., or .041 watt, and a contact rating of 1,100 watts, give it the relaying ratio of 24,000:1. The high resistance of the coil makes it especially suitable for use with vacuum-tube relay circuits. Its small size suggests that it will find application as component part in many types of equipment. It is 3⅝ inches long, 3½ inches high and 1¾ inches wide.

Notes About Trade Literature

A 16-page booklet issued by the General Electric Co. presents a "movie" entitled "Spots of Heat for Industrial Plants."

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The American Car & Foundry Co., 30 Church Street, New York, is distributing an eight-page bulletin describing A.F.C. improved lubricated plug valves.

—

The second installment of "Some Factors Governing the Use of Weight Material in Drilling Wells" is given in the current number of "Drilling Mud," published by Baroid Sales Co., 837 Jackson Street, Los Angeles, Calif.

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The technical story of Toncan iron pipe is presented in a 24-page, illustrated booklet issued for distribution by the Republic Steel Corp., Youngstown, Ohio.

—

"Thermit Welding, Industry's Master Maintenance Tool," is the title of a new illustrated booklet obtainable from the Metal & Thermit Corp., 120 Broadway, New York. The new booklet describes Thermit welding, an alumino-thermic process.

—

"Vitalize the air you breathe," enjoins a bulletin issued by the American Radiator Co., 40 West Fortieth Street, New York, describing the Arco humidifier "A," designed for offices, shops, etc.

—

The American Asphalt Paint Co., 43 East Ohio Street, Chicago, maker of Valdura products, has a new brochure, "Color and Protection," ready for distribution.

—

The American Car & Foundry Co., 30 Church Street, New York, is sending to applicants a bulletin describing the company's new lubricated plug valve.

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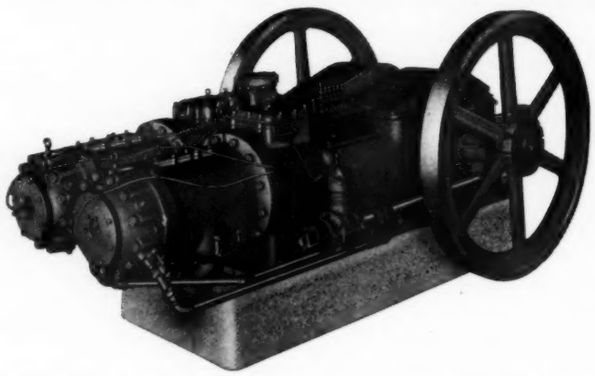
A new general catalog of 100 pages, covering the concern's complete line of automatic control specialties, has been prepared for distribution by the Fisher Governor Co., Marshalltown, Iowa.

Reid Adds Twin-Cylinder Gas and Oil Engines to Line



The Joseph Reid Gas Engine Co., Oil City, Pa., has added twin-cylinder enclosed two-cycle gas and oil engines to its line of oil country machinery.

The twin engines are built in two styles, designated as Type C and Type DC. The Type C can be furnished as gas engines or as oil engines and can be converted from gas to oil or vice versa. They are built in two sizes, 12½"x16" with a conservative rating of 100 horsepower at 180 r.p.m. to 160 horsepower at 300 r.p.m., and 13¼"x16" with a rating of 110 horsepower at 180 r.p.m. to 175 horsepower at 300 r.p.m.

The Type DC is 12½"x16" and can be furnished either as a full Diesel or gas engine. As a Diesel engine its horsepower rating is from 100 at 225 r.p.m., to 150 at 300 r.p.m. As a gas engine its horsepower rating is from 100 at 180 r.p.m., to 160 at 300 r.p.m.

These twin engines are slow-speed, heavy-duty type prime movers. With abundant power and wide speed range, they are particularly suited to beam well pumping and central pumping power plant drives as well as to such other heavy work as driving water pumps, compressors, countershafts, and generators.

Except for the additional cylinder, piston, crosshead, connecting-rod, mixing valve and fuel system parts, there are no more parts than are in the single-cylinder engines. The entire engine is enclosed and oil-tight, but easy access to all working parts permits frequent and thorough inspections.

Distinctive among the features of both Type C and Type DC twin engines are layshaft-driven water pump; entirely enclosed bed plate; splash lubrication of main bearings, crank, connecting rods, crossheads, and layshaft gears; three-bearing, counterbalanced crankshaft with cranks at 180 degrees; three removable steel-backed, babbitt-lined shell main bearings; metallic piston rod packing; and automatic air starting valves for each cylinder.

The major difference between the Type C and the Type DC is that the DC has a larger crank and has automotive type connecting rods, while the Type C uses marine type rods. The purpose of the larger crank is to provide for the greater pressures encountered in a full Diesel engine.

Conversion of both types from gas to oil or from oil to gas is easily accomplished, as few parts are involved in making the change.

Men Well Known in the Equipment Field

Tom N. Hunt, of Houston, Tex., president of the Authorized Appleman Bit Service Co., is the designer and developer of the new Hunt retractable core barrel brought into service several months ago.

TOM N. HUNT

This device, on which patent is pending, offers features not previously known in coring devices, outstanding of which is the fact that the core cutter is an integral part of the bit and the barrel seats in the drill bit instead of going through it.

Mr. Hunt entered the oil industry in 1928 when he became associated with the Speed & Service Iron Works of Houston. In 1930 he left that company to organize Authorized Appleman Bit Service Co., having obtained a license from B. K. Appleman, of Beaumont, Tex., to distribute and service the Appleman fishtail bit. He opened headquarter offices and shop in Houston, and now operates two additional shops, one in Joinerville, Tex., and one in Bay City, Tex.

FOR WELDING CAST IRON

An electrode for welding cast iron by the shielded arc process is announced by the Lincoln Electric Co., Cleveland, Ohio. The "Ferroweld" not only simplifies welding procedure on cast iron but produces a weld with greater strength and ductility than the cast iron. "Ferroweld" has a steel core surrounded by a heavy flux coating which protects the arc from gases injurious to the weld which are present in the atmosphere. One of the advantages claimed for "Ferroweld" is the low heat with which it can be used, thus reducing the possibility of cracking. The electrode is manufactured in only one size, one-eighth inch, and is used with approximately 80 amperes of current.

Literature available on request to the Grant Oil Tool Co., 2042 East Vernon Avenue, Los Angeles, Calif., includes bulletins on Grant underreamers, Grant bailers and cleaners, Grant catline grip, Grant adjustable liner puller and Grant safety equipment.

MARKET RECORD OF OIL SECURITIES

Active Oil Stocks Listed on New York Stock Exchange

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1934 High	1934 Low	Week ended Jan. 20 Sales	Week ended Jan. 20 High	Week ended Jan. 20 Low	Week ended Jan. 20 Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	1933 High	1933 Low	1932 High	1932 Low	1931 High	1931 Low
47	41½	5,000	47	43½	46	Amerada Corp.	774,875	N.P.	50cQ	1-31-34	47⅝	18½	22¾	12	23	11¼
31⅞	28¼	41,600	31⅞	29	31⅞	Atlantic Refining	2,673,834	$25	25cQ	12-15-33	32½	12⅝	21⅞	8⅝	23⅝	8⅝
9½	7¾	36,300	9½	7⅞	9⅜	Barnsdall Corp.	2,186,385	$5	....	5-11-31	11	3	7	3⅜	14½	4
15	11⅛	116,600	15	13	14⅞	Columbia Gas & Elec.	11,610,036	N.P.	12½cQ†	2-15-34	28⅛	9	21	4¼	45⅝	11⅝
11⅝	9¾	936,500	11⅝	10⅜	11½	Consolidated Oil Corp.	14,218,835	N.P.	....	.....	15¾	5	9	4	15⅞	4⅛
18⅞	16⅝	54,300	18⅞	17½	18¾	Continental Oil of Delaware	4,738,593	$5	....	.....	19⅝	4⅞	9⅜	3⅝	12	5
18⅞	15⅛	12,000	18⅞	16⅝	18½	General Asphalt	387,149	$10	....	6-15-32	27	4⅝	15½	4¾	47	9⅝
4¾	3½	4,000	4¾	3⅝	4¾	Houston Oil (new)	1,098,618	$25	....	10-17-30	7⅜	1⅞	5⅜	1⅛	14⅛	3
2	1¼	3,100	2	1⅜	2	Louisiana Oil Refining	1,302,158	N.P.	....	.....	4	⅝	2¼	½	4½	1
13⅛	11⅝	16,500	13⅛	12⅛	13	Mid-Continent Petroleum	1,857,912	N.P.	....	2-16-31	16	3¾	8⅞	3¾	16¾	5
15¼	11½	5,000	15¼	12½	15¼	National Supply of Delaware	382,591	$25	....	5-15-31	28⅝	4	13	3½	70¼	5
14⅝	12⅝	50,900	14⅝	13	14½	Ohio Oil Co.	6,563,107	N.P.	....	12-15-32	17⅝	4¾	11	5	19½	5⅛
7½	6⅞	700	7½	7	7⅜	Pacific Western Oil	1,000,000	N.P.	25c‡	10-25-33	9½	3	8	3	15	2⅞
2	1¼	1,400	2	1¼	2	Panhandle P. & R.	198,770	N.P.	....	.....	4¼	⅜	1¼	¼	4¼	⅝
16⅞	15⅛	55,500	16⅞	15½	16⅞	Phillips Petroleum	4,155,113	N.P.	25c	2-15-34	18¾	4¾	8⅛	2	16⅝	4
15⅝	12¾	49,700	15⅝	13	15½	Plymouth Oil Co.	990,261	$5	25cQ	12-21-33	17⅝	6¾	12½	6	19	6
12⅜	10⅛	37,000	12⅜	10¾	12⅛	Pure Oil	3,038,370	N.P.	....	9- 1-30	15⅜	2½	6½	2⅞	11⅞	3¼
38	36	1,700	38	36½	37½	Royal Dutch N. Y. shares	432,224	$14	$1.07½	8-14-33	39¾	17⅝	23¾	12⅛	42⅝	13
31⅝	25⅜	24,700	31⅝	28¼	31⅜	Seaboard Oil of Delaware	1,204,460	N.P.	15cQ§	12-15-33	43⅜	15	20⅜	6⅝	20¾	5½
9⅜	7⅞	24,000	9⅜	8⅝	9¼	Shell Union Oil	13,070,625	N.P.	....	6-30-30	11⅝	4	8¾	2½	10¼	2½
69½	58	2,500	69½	62½	69½	Shell Union Oil pfd.	400,000	$100	....	7- 1-31	61	28½	65¼	18	78	15
10½	9¼	4,300	10½	9⅝	10	Simms Petroleum	461,000	$10	25c	1-17-34	12⅜	4⅞	7½	3¼	11	3½
9⅛	7⅞	2,200	9⅛	8⅜	8⅝	Skelly Oil	1,008,514	$25	....	12-15-30	9⅞	3	5¾	2½	12⅞	2
17	15¼	140,200	17	16⅛	16⅞	Socony-Vacuum	31,019,694	$25	25c	12-15-33	17	6	12¼	5¼	21	8⅜
41⅜	38⅛	61,700	41⅜	38⅛	41⅛	Standard Oil of California	13,102,900	N.P.	25c	12-15-33	45	19½	31⅞	15⅛	51⅜	23⅛
38	36	500	37	36	36¼	Standard Oil of Kansas	200,000	$10	50cQ	1-31-34	39⅞	12¾	16½	7	19	7¾
46¾	44¼	51,000	46¾	44½	46⅛	Standard Oil of New Jersey	25,740,965	$25	50cSA	12-15-33	47½	22¾	37⅜	19⅞	52½	26
56	51½	1,400	56	52¾	56	Sun Oil	1,591,110	N.P.	25cQ	12-15-33	59	35	39⅞	24⅜	45¼	26¾
26⅞	23⅛	40,400	26⅞	23⅛	26½	Texas Corp.	9,486,417	$25	25cQ	1- 1-34	30⅛	10¾	18¼	9¼	36¼	9⅞
4⅛	3½	4,000	4⅛	3⅝	4⅛	Texas Pacific Coal & Oil	880,703	$10	....	12-31-29	6½	1⅜	4	1½	6½	1⅞
10¼	8½	43,600	10¼	8⅞	10⅛	Tide Water Associated	5,613,800	N.P.	....	2-16-31	11⅜	3⅛	5⅝	2	9	2⅛
68½	64½	1,200	68½	67	68½	Tide Water Associated pfd.	666,524	$100	$1.50Q	12-23-33	65¼	23½	60	20	68	20½
19⅝	18¼	20,300	19⅝	18⅜	19½	Union Oil of California	4,386,070	$25	25cQ	2-10-34	23⅜	8½	15⅜	8	26⅝	11
18¼	15⅝	3,300	18¼	16⅝	18	Union Tank Car	1,200,000	N.P.	30cQ	12- 1-33	22¾	10½	19¼	11¾	25⅛	16
4⅞	3⅝	5,600	4⅞	3⅞	4⅞	Wilcox Oil & Gas	424,839	$5	....	5-10-28	5½	2	8¾	2¾	9⅜	2¾

*Ex-dividend. †Payable in 5 per cent convertible preferred stock. ‡Initial dividend. §Plus extras.

Active Oil Stocks Listed on New York Curb

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1934 High	1934 Low	Week ended Jan. 20 Sales	Week ended Jan. 20 High	Week ended Jan. 20 Low	Week ended Jan. 20 Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	1933 High	1933 Low	1932 High	1932 Low	1931 High	1931 Low
34	32	100	34	32½	34	Buckeye Pipe Line Co.	200,000	$50	75cQ	12-15-33	39¾	25	35	17½	56	30
3¾	3¼	6,800	3¾	3¼	3¾	Carib Syndicate	579,000	25c	....	.....	7¾	¼	¾	¼	2⅜	¼
125	118½	350	125	121½	123	Chesebrough Mfg. Co.	120,000	$25	$1Q†	12-30-33	129	71	90	53	129½	75
3½	1¾	125,800	3½	2¾	3	Cities Service	37,804,394	N.P.	....	6- 1-32	6¼	1½	6⅞	1¼	20¾	5
2½	1⅛	2,500	2¼	1½	2⅛	Colon Oil	2,200,000	N.P.	....	.....	4	¼	1¼	¼	3⅛	¼
3⅞	1⅝	14,800	3⅞	3	3½	Cosden Oil	399,687	$1	....	.....	3⅞	1⅜	2⅞	¼	3¾	⅜
11⅞	9⅝	58,200	11⅞	10⅜	11¾	Creole Petroleum	6,974,356	$5	....	.....	12	4¾	3⅛	1¾	3⅞	1⅝
7½	4¾	3,000	7½	6⅛	7⅜	Darby Petroleum	509,696	$5	....	10-15-30	8	2⅛	7⅛	1⅝	2½	1⅝
1⅞	1⅝	1,000	1⅞	1⅝	1⅞	Derby Oil & Refining	263,162	N.P.	....	.....	2¾	⅞	3	1	6	1½
33½	33	No sales	..	..	..	Eureka Pipe Line	50,000	$100	$1Q	11- 1-33	41¾	20	35	18	36	19
71⅞	58	22,900	71⅞	59½	71½	Gulf Oil Corp.	4,538,101	$25	....	10- 1-31	62	24	44¾	23	75½	25⅜
39	33¼	22,300	39	35⅞	38⅞	Humble Oil & Refining (new)	8,923,935	N.P.	50cQ	1- 1-34	105½	40	55	35⅝	72	44½
14¼	12⅝	13,900	13½	13	13¼	Imperial Oil of Canada	26,742,792	N.P.	12½c‡	12- 1-33	15⅞	6½	10⅞	6¼	18¼	7⅜
5½	4⅝	700	5½	4¾	5½	Indiana Pipe Line	300,000	$10	15cSA†	11-15-33	8	3⅛	7½	2¾	21⅛	5½
21¾	19½	35,000	21¾	20⅛	21⅜	International Petroleum	14,247,088	N.P.	28cQ‡	12-15-33	23½	8⅞	12¼	8	15½	7⅜
3⅛	2½	10,100	2⅞	2½	2¾	Louisiana Land & Exp.	3,000,000	N.P.	....	.....	2¼	⅛	2½	½	2	½
5	4¾	No sales	..	..	..	Lion Oil Refining	270,000	N.P.	....	10-27-30	9½	1¼	3½	⅞	6¾	1½
6⅞	5¾	3,600	6⅞	6⅛	6⅞	Lone Star Gas	5,382,723	N.P.	16cQ§	12-30-33	11⅞	4¾	11	3⅜	29	5½
4½	4	1,100	4½	4⅛	4⅛	Mountain Producers	1,682,182	$10	15cQ	1- 2-34	6½	2½	4¾	2⅛	5⅞	2
15⅛	14	1,100	15	14	14	National Fuel Gas	3,810,183	N.P.	25cQ	1-15-34	20	10	14⅝	8	26½	9¾
8½	8	500	8½	8½	8½	National Transit	509,000	$12.50	40cSA	12-15-33	10	5½	10½	6	17½	5
2⅛	1¾	3,300	2⅛	1⅞	1⅞	New Bradford Oil	1,445,202	$5	....	4-15-31	2⅛	½	⅞	¼	1½	½
1⅛	1	500	1⅛	1	1⅛	New Mexico and Arizona	1,000,000	$1	....	.....	1⅞	½	1¼	⅜	3	¾
3⅛	3	No sales	..	..	..	New York Transit	100,000	$5	15cSA	10-14-33	4⅞	3	9¾	7½	14½	5⅞
5⅜	4⅝	200	5⅜	4¾	4¾	Northern Pipe Line	120,000	$10	25cSA	1- 2-34	6⅛	4¼	5½	3⅛	35½	20
1¼	⅞	4,700	1¼	1	1¼	Pantepec Oil	1,608,700	N.P.	....	.....	3¾	⅛	⅝	⅛	2	⅜
1⅝	1¼	500	1⅝	1⅜	1⅝	Ryan Consolidated	296,931	N.P.	....	.....	4¼	⅝	2⅛	⅝	3	¾
6⅜	5¾	1,700	6½	6⅛	6½	Salt Creek Producers	1,496,859	$10	20cQ	2- 1-34	9¼	3½	5½	2⅞	7⅝	2¾
19⅜	17½	1,800	19⅜	17⅞	19⅜	South Penn Oil	1,200,000	$25	25cQ	12-30-33	22⅛	11	16½	9⅝	23⅞	9¼
4⅜	4	100	4⅛	4⅛	4⅛	Southern Pipe Line	100,000	$10	10cSA	9- 1-33	6	2⅛	10	3¾	17	7
..	..	No sales	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	$1Q	12-27-33	43	24½	37	27	42½	25
32½	31½	28,900	32½	31⅝	32¼	Standard Oil of Indiana	15,941,894	$25	25cQ	12-15-33	34	17	25⅛	13⅛	38½	13½
16⅞	14⅝	7,300	16⅞	15	16⅝	Standard Oil of Kentucky	2,606,983	$10	25cQ	12-15-33	19¼	8⅜	15⅞	8⅞	23⅝	12⅛
15⅜	13½	800	15¾	14	15¾	Standard Oil of Nebraska	190,822	$25	25cQ	12-20-33	20½	11	19	10¼	36½	16
26½	23¼	2,350	26½	23⅝	26	Standard Oil of Ohio	753,740	$25	....	1- 3-33	41	15½	30⅛	15½	62½	23
1	⅝	3,300	1	¾	1	Sunray Oil	1,162,840	$5	....	4-15-31	1½	¼	⅝	⅛	5¼	¼
6⅞	6¼	2,400	6⅞	6½	6⅝	Texon Oil & Land	936,028	N.P.	15c	1- 2-34	13¾	6¼	10½	4½	12⅞	2½

*Ex-dividend. †Plus extras. ‡Payable in Canadian funds. §Payable in preferred stock.

Note—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

Administrator's Report on Crude Stocks

Stocks of domestic and foreign crude petroleum at the close of the week ended January 13 totaled 342,894,000 bbls., an increase of 582,000 bbls. over the comparable total of 342,312,000 bbls. on hand at the end of the preceding week, Harold L. Ickes, Secretary of the Interior and administrator of the code of fair competition for the petroleum industry, announced today. This increase, which represents a daily average gain of 83,000 bbls., comprised an increase of domestic crude stocks of 521,000 bbls. an increase of foreign crude oil stocks of 61,000 bbls. This accumulation in stocks follows a material gain in the various week; together they indicated a daily addition to total crude oil stocks of 100,000 bbls. during the first half of January, 1934.

Current reports of the oil industry point to material gains in both crude production and crude runs to stills during the week ended January 13. Imports of crude showed a gain over the previous week and averaged about 100,000 bbls. daily. The approximate daily average balance of crude oil during the week January 13 was as follows (barrels): Production, 2,350,000; imports, 100,000, equals runs to stills, 2,255,000; increase in stocks, 83,000; fuel, losses, etc., 112,000.

CRUDE PETROLEUM STOCKS REPORTED BY COMPANIES HOLDING 100,000 BBLS. OR MORE

Grade of crude oil—	Stocks held by reporting companies— Dec. 30, 1933 (bbls.)	Jan. 6, 1934 (bbls.)	Jan. 13, 1934 (bbls.)	Change from Jan. 6, 1934 (bbls.)
Pennsylvania Grade	5,360,000	5,305,000	5,366,000	+61,000
Other Appalachian, inc. Ky	1,186,000	1,241,000	1,259,000	+18,000
Lima-N. E. Indiana-Michigan	*1,605,000	*1,660,000	1,710,000	+50,000
Illinois-S. W. Indiana	11,161,000	11,242,000	11,320,000	+78,000
North Louisiana and Arkansas	11,877,000	11,938,000	12,077,000	+139,000
West Texas and S. E. New Mexico	32,039,000	32,097,000	31,873,000	—224,000
East Texas	*44,130,000	*43,929,000	44,065,000	+136,000
Other Mid-Continent	*153,671,000	*153,579,000	154,199,000	+602,000
Gulf Coast	*15,873,000	*16,437,000	16,455,000	+18,000
Rocky Mountain	27,216,000	27,263,000	27,192,000	—71,000
California	†34,331,000	†34,526,000	34,240,000	—286,000
Total domestic crude	338,499,000	339,235,000	339,756,000	+521,000
Foreign crude	2,861,000	3,077,000	3,138,000	+61,000
Total crude	341,360,000	342,312,000	342,894,000	+582,000

*Revised to exclude companies formerly reporting but now holding less than 100,000 bbls. and to include other companies now holding more than 100,000 bbls. †Revised; approximately 1,100,000 bbls. reclassified as fuel oil.

Wildcat Operations in Louisiana-Arkansas

(Continued from Page 117)

CONVERSE DISTRICT

Arrock Oil Co.'s No. 1 Hewitt, 330 ft. N and E, SW cor. NE SE Sec. 20-9-13 ..... Treating with acid 1,606 ft.
J. F. Anderson's No. 1 Burkett, 135 ft. N, 655 ft. E, SW cor. NW Sec. 10-9-13 ..... W.O.S.R. 1,921 ft.
Nick Barbare's No. 1 Bolton, Sec. 9-9-13 ..... Set 6-in. 1,705 ft.
Nick Barbare's No. 1 Burkett, 500 ft. N, 900 ft. E, SW cor. NW Sec. 10-9-13 ..... Drlg. 1,810 ft.
J. W. Bettis et al's No. 1 Frost Lbr Ind., 330 ft. S and W, NE cor. SW Sec. 15-9-13 ..... Rigging up.
Cleary Bros.' No. 1 Harris, 105 ft. N, 330 ft. E, SW cor. SE NW Sec. 10-9-13 ..... Set 6-in. 1,451 ft.
A. G. Craig's No. 1 Belton, 330 ft. N and E, SW cor. NW NW Sec. 33-9-13 ..... Drlg. 1,010 ft.
Florence Oil Co.'s No. 2 Crawford, Sec. 20-9-13 ..... Set 6-in. 1,484 ft.; drlg. 1,800 ft.
J. E. Freeman's No. 1 Barr, 990 ft. N and E, SW cor. NW Sec. 15-9-13 ..... Comp. pumping 25 bbls. 1,984 ft.
Alfred Glassell's No. 1 Tatum, 330 ft. N and W, SE cor. NE NW Sec. 9-9-13 ..... Swabbing 1,942 ft.
Helena O. & G. Co.'s No. 1 E. L. Graham, 330 ft. N and W, SE cor. NE NW Sec. 20-9-13 ..... Testing 1,955 ft.
Helena O. & G. Co.'s No. 2 Chambliss, 330 ft. S and E, NW cor. SW NE Sec. 20-9-13 ..... W.O.S.R. 1,955 ft.
Helena O. & G. Co.'s No. 1 E. K. Harris, 990 ft. S and W, C Sec. 10-9-13 ..... Comp.; swabbing 50 bbls. 1,955 ft.
R. P. Holland's No. 1 Harris, 687 ft. N, 530 ft. E, SW cor. SE NW Sec. 10-9-13 ..... Bailing 1,952 ft.
R. P. Holland et al's No. 1 A. J. Burkett, 990 ft. N, 330 ft. W of C, Sec. 10-9-13 ..... W.O.S.R. 1,850 ft.
Lanier & Rodgers' No. 1 Paul, 260 ft. N, 40 ft. E, SW cor. NW, Sec. 10-9-13 ..... Set 6-in. 1,740 ft.; drlg. 1,890 ft.
Miles & Strickland's No. 1 Ross & Son, 150 ft. N, 909 ft. E, SW cor. NW Sec. 10-9-13 ..... Hole full oil 2,007 ft.
John W. Moffett's No. 1 Logan Oil Co., Sec. 3-9-13 ... Testing 1,985 ft.
Geo. W. Pace's No. 1 Quinn, 600 ft. E, 180 ft. S, NW cor. Sec. 10-9-13 ..... Testing 2,000 ft.
Dr. C. R. Reed's No. 1 Allen, 495 ft. S, 600 ft. E, NW cor. Sec. 10-9-13 ..... Setting tubing 1,000 ft.; oil 1,546 ft.
Reese and Martin's No. 1 Allen, 762 ft. S and 308 ft. E NW cor. Sec. 10-9-13 ..... Set 12-in. 65 ft.
J. D. Reynolds' No. 3 Paul est., 586 ft. N, 263 ft. W, SE cor. SW NE, Sec. 9-9-13 ..... Drlg. 1,320 ft.
J. D. Reynolds' No. 1 Paul est., 291 ft. N, 738 ft. W, SE cor. SW NE Sec. 9-9-13 ..... Sidetracking 6-in. 1,700 ft.
W. H. Rowe et al's No. 1 Craig, 330 ft. S and E, of center Sec. 22-9-13 ..... Set 10-in. 40 ft.
Sabine Royalties Co.'s No. 2 Graham, 330 ft. N and E, SW cor. NW, Sec. 20-9-13 ..... Set 6-in. 1,506 ft.
J. E. Sedberry's No. 1 Morgan, NE cor. NW NW Sec. 10-9-13 ..... Drlg. 1,012 ft.
J. B. Williams' No. 1 Tatum, 330 ft. N and W, SE cor. NW SE Sec. 32-9-13 ..... Rigging up.
Windsor Oil Co.'s No. 2 Barr, 330 ft. N and E, SW cor. NW Sec. 15-9-13 ..... Location.
Winn & Caviness' No. 1 Paul est., 330 ft. N, 42 ft. W, SE cor. NW Sec. 9-9-13 ..... Set 6-in. 1,750 ft.

SABINE—ZWOLLE

H. C. Maulding's No. 1 Alford, 330 ft. S and W, NE cor. NW NW Sec. 18-7-10 ..... Derrick.
H. C. Maulding's No. 1 Van Vickhaven, 330 ft. N and W, SE cor. NE Sec. 3-7-11 ..... Set 6⅝-in. 2,278 ft.

WEBSTER PARISH

J. P. Evans' No. 1 Crichton, 350 ft. N and W, SE cor. NE SW, Sec. 34-18-9 ..... Set 10-in. 150 ft.; drlg. 1,825 ft.

Arkansas

JEFFERSON COUNTY

J. E. Elliott's No. 1 B. V. Nevin, 440 ft. N and E, SW cor. SW NW Sec. 26-4-10 ..... Rigging up.

HEMPSTEAD COUNTY

A. H. Bagnelle's No. 1 Trattner & Rhinehart, Sec. 2-13-26. Pulling liner to deepen 945 ft

LAFAYETTE COUNTY

Douglas Lawn's No. 1 Camp, 330 ft. S and W, NE cor. SW SE Sec. 14-15-23 ..... Set 10-in. 52 ft.
George W. Harper's No. 2 Bodcaw, 150 ft. S, 550 ft. E NW cor. SW NW Sec. 16-15-22 ..... S.D. 1,216 ft.

MILLER COUNTY

Black Diamond Oil Co.'s No. 1 Miller Land Co., Sec. 29-15-27 ..... Drlg. 3,415 ft.
Duluth-Ark. Oil Co.'s No. 2 Beck, 330 ft. S and E, NW cor. SE SW Sec. 34-15-26 ..... Testing 2,807 ft.
Fitzwater et al's No. 1 Norson, SW cor. SE SW Sec. 20-15-27 ..... Set 6⅝-in. 2,978 ft.; T.D. 3,008 ft.
Magnolia Pet. Co.'s No. 2 Olivet, 310 ft. S, 1,170 ft. E NW cor. NW NE Sec. 4-16-26 ..... Rigging up.
C. E. Murdock's No. 1 Ross, Sec. 4-16-26 ..... P.B. to 2,933 ft.; W.O.S.R.
C. E. Murdock's No. 1 Smith (formerly Baker & McMurray), 150 ft. N and W, SE cor. SE SW Sec. 33-15-26 ..... Bailing 2,700 ft.; oil 2,926 ft.
Frank W. Roe's No. 1 Dominick, 330 ft. S and E, NW cor. NW NW Sec. 21-15-26 ..... Arrng. resume drlg. 2,830 ft.
Texarkana Oil Corp.'s No. 2 E. L. Beck, 240 ft. N, 450 ft. E, SW cor. SW SE Sec. 33-15-26 ..... W.O.S.R. 2,931 ft.
Lee Timberlake's No. 1 B. F. Smith, 150 ft. N and W, SE cor. NE SW Sec. 32-15-26 ..... Coring 2,933 ft.

OUACHITA COUNTY

F. G. Harrell's No. 1 Poindexter, 330 ft. S and E NW cor. Sec. 35-15-18 ..... Testing 2,390 ft.
L. L. McDonald's No. 1 J. A. Robertson, 200 ft. S and E, NW cor. NE NW Sec. 25-15-16 ..... W.O.S.R. 2,092 ft.

UNION COUNTY

E. R. Henderson's No. 2 J. H. Ogden, 330 ft. S and E, NW cor. SW SE Sec. 32-18-14 ..... W.O.S.R. 2,208 ft.
E. R. Henderson's No. 1 Vines, 330 ft. N and W, SE cor. SW SE Sec. 29-18-14 ..... Arrng. set 6-in. 2,161 ft.
Marine Oil Co.'s No. 2 Union Sawmill Co., 330 ft. S and E, NW cor. SE SE Sec. 3-18-13 ..... W.O.S.R. 3,562 ft.
Sam M. Richardson Oil Co., Inc.'s No. 1 Hammond, 330 ft. S and E, NW cor. SE NE Sec. 19-17-15 ..... Salt wtr. and abnd. 2,207 ft.
Chas. Steele's No. 1 J. B. Combs, 150 ft. N, 185 ft. W, SE cor. SW NW Sec. 25-18-16 ..... Rigging up.

Mississippi

NEWTON COUNTY

Bod Dalton et al's No. 1 Majura, SE SE Sec. 25-6-11 ..... Drlg. 3,370 ft.

SIMPSON COUNTY

Beavy Corp.'s No. 1 R. J. Beavy, C SW Sec. 13-2n-4e ... Drlg. 2,380 ft.

WALTHALL COUNTY

Mutual O. & G. Co.'s No. 1 Boyd, Sec. 24-2n-9e, SW cor. SW SE ..... Moving in rig.

WARREN COUNTY

Orbet Drlg. Co.'s No. 1 R. L. Parker, 300 ft. E, CWL, Sec. 14-14-1e ..... S.D. for fuel 2,417 ft.

Louisiana-Arkansas Proven Areas

North Louisiana

BOSSIER PARISH

Company, well, farm name, section and block—	Remarks:
United Gas Pub. Serv. Co.'s No. 1 Skannell Unit, Sec. 13-17-12	Drlg. 3,928 ft.

CADDO—RODESSA

Louana O. & G. Co.'s No. 2-A Hammock, C NW NE Sec. 5-18-16	Set 10-in. 80 ft.
R. W. Norton's No. 1-B J. B. French, 660 ft. S and E, NW cor., Sec. 34-23-16	Drlg. 5,780 ft.

CLAIBORNE PARISH

United Gas Public Service Co.'s No. 2 Tony Durrett, 38 ft. S, 50 ft. W of CNL NE NW Sec. 8-19-5	Set 12½-in. 500 ft.; drlg. 2,301 ft.

Handbook of Butane-Propane Gases

First edition, 1932; 239 pages; fully illustrated

Reviewing this notable volume in The Oil and Gas Journal, Dr. C. K. Francis comments as follows:

Its twelve chapters discuss the development, physical properties, chemical composition, manufacture, transportation, and uses of these gases, and also appliances for their utilization . . . . . This important volume contains a fund of information which has not hitherto been available in book form. The book should be in the library of every person whose duties call for a reliable knowledge of natural gas, refinery gases, and their effective use.

CONTENTS

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Properties of Butane-Propane Mixtures and Relation of Properties to Temperatures
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Uses of Butane and Propane With Manufactured Gas
Manufacture of Liquefied Petroleum Gas
Transportation of Liquefied Petroleum Gases
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MOREHOUSE PARISH

United Carbon Co.'s No. 1 Montgomery, 1,339 ft. S, 2,268 ft. E of C Sec. 9-21-5l ..... Drlg. 2,488 ft.

OUACHITA PARISH

Hatcher & Evans' No. 10 Hatcher, Sec. 17-19-4 ..... Set 6-in. 2,153 ft.

SABINE PARISH—ZWOLLE

Baird Bros.' No. 1 Cooper, 330 ft. S and W, NE cor. SE Sec. 30-8-11 ..... Drlg. 1,623 ft.

Dyer et al's No. 1 McCollister, 330 ft. S and E, NW cor. SW NE Sec. 24-7-12 ..... Drlg. 370 ft.

Magnolia Pet. Co.'s No. 2 Lilley, Sec. 8-7-11 ..... Comp. flowing 600 bbls. 2,610 ft.

Magnolia Pet. Co.'s No. 1 Semon Lilly, NE cor. SE NW Sec. 8-7-11 ..... Comp. flowing 380 bbls. 2,590 ft.

Magnolia Pet. Co.'s No. 2 Gindratt, 330 ft. N, 320 ft. E, SW cor. SE Sec. 30-8-11 ..... T.A. 2,485 ft.

L. C. McGuffin's No. 2 Chaddick, Sec. 5-7-10 ..... Drlg. 2,628 ft.

J. H. Reeves' No. 1 Sabine Lbr. Co., 330 ft. N and S SE cor. NE NW Sec. 7-7-11 ..... Set 10-in. 60 ft.

A. H. Tarver's No. 2 Baur and Barthold, Sec. 25-8-12 .. Set 10-in. 50 ft.; drlg. 1,807 ft.

L. J. Tillery's No. 1 Sabine Lbr. Co., 800 ft. S, 320 ft. W, NE cor. Lot 3, La. Nava grant, Sec. 5-7-11 ..... Testing 2,475 ft.

Mississippi

HINDS COUNTY

B. B. Jones' No. 1 Stone, 500 ft. S, 100 ft. E, NW cor. Sec. 18-5n-3e ..... Drlg. 3,960 ft.

Muse & Weaver's No. 1 Sellers, 660 ft. N, 330 ft. W, SE cor. SW NE Sec. 26-6n-1e ..... Reaming 2,462 ft.

RANKIN COUNTY

Ferguson, Fuller & Metz' No. 1 Ammons, 350 ft. E and S, NW cor. NW NW Sec. 35-3n-3e ..... Partly rigged up and S.D.

Cleve Love et al's No. 1 Thomas, SW Sec. 10-4-1e ..... Set 7-in. 4,770 ft.

East Texas (Border Counties)

PANOLA COUNTY

Dale and Sneed's No. 1 Wooten estate, P. Martin Sur. .. Rigging up.

Holden and Nichols' No. 1 S. W. Ray, W. B. Culver Sur. ..... W.O. csg. 2,080 ft.

Keisker and Uanier's No. 1 Frost Lbr. Ind., Mary Potts Sur. ..... Set 12½-in. 160 ft.; drlg. 2,131 ft.

C. R. Obermeyer et al's No. 1 Wooten estate, P. Martin Sur. ..... W.O. csg. 2,110 ft.

Rocundx and Acres' No. 1 Burnett Lbr. Co., J. H. Mallory Sur. ..... Rigging up.

Southern Prod. Co.'s No. 3 Wooten estate, P. Martin Sur. ..... Drlg. 1,300 ft.

Wildcat Operations in Gulf Coast

(Continued from Page 118)

ARRIOLA—HARDIN COUNTY

Republic-Houston Oil Co.'s No. 6 Arriola fee, 2,150 ft S of N line, 5,050 ft. E of W line of lease, Arriola Sur. ..... No report.

BATSON—HARDIN COUNTY

Danciger O. & R. Co.'s No. 2 Hooks, W. Donoho Sur., 330 ft. E of CWL, Blk. 24 ..... Drlg. shale 4,816 ft.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 105 Jordit fee, 50 ft. due N of No. 94 ..... T.D. 927 ft.; set screen 917 ft.; comp. delayed pending drilling of No. 105-A Jordit on same derrick floor to 700-ft. sand.

Rio Bravo Oil Co.'s No. 105-A Jordit (same derrick floor as No. 105) ..... Coring sand 812 ft.

Seismo Oil Co.'s No. 1 Casewell, 940 ft. S of NW cor. and 600 ft. from E line, H.B.B.&C. Sur. ..... No report.

SOUR LAKE—HARDIN COUNTY

Arlis Pet. Co.'s No. 1 Sour Lake Bank, H.&T.C. Sur., NW cor. Blk. 11, Sec. 69 ..... T.D. 2,050 ft.; standing

HUMBLE—HARRIS COUNTY

Texas Co.'s No. 40 Stevenson (W.O.) ..... T.D. 3,134 ft.; sidetracked 2,622-2,882 ft.; rigging up to pump.

PIERCE JUNCTION—HARRIS COUNTY

Rio Bravo Oil Co.'s No. 16-A Settegast, 620 ft. W, 329 ft. N, SE cor. J. Kopman Sur. (W.O.) ..... Set screen 4,393 ft.; swabbing.

TOMBALL—HARRIS COUNTY

Amerada Pet. Corp.'s No. 2 Otto Rudel, 466 ft. from N line, 500 ft. from W line of tract, J. House Sur. .. Comp. flowing 18 bbls. per hour, ¼-in. choke, 5,578 ft.

Humble O. & R. Co.'s No. 1-A Brautigan, J. Edwards Sur., 500 ft. from S line, 500 ft. from E line of lease. Drlg. shale 3,146 ft.

Humble O. & R. Co.'s No. 1 F. J. Holderrith, C. N. Pillot Sur., 466 ft. out of SW cor. ..... Drlg. shale 3,462 ft.

Humble O. & R. Co.'s No. 1 Moody, 466 ft. E, 466 ft. S of NW cor. 100-ac. tract, J. H. Edwards Sur. ... Sand 5,564-88 ft.; set screen; washing.

Humble O. & R. Co.'s No. 1 Schearer, 466 ft. S line, midway E and W of 56-ac. tract, C. Goodrich Sur... Sand and shale 5,573 ft.; cmtd. 7-in. csg.

Humble O. & R. Co.'s No. 1 Weindorf, 435 ft. W line, 500 ft. from S line of lease, C. Goodrich Sur. ..... Sand and shale 5,575 ft.; cmtd. 7-in. csg.

Skelly Oil Co.'s No. 1 Schultz, J. H. Edwards Sur., 456 ft. from S line, 404 ft. from E and W lines ..... Derrick.

Standard O. & G. Co.'s No. 1 Brautigan, 466 ft. from N line and 575 ft. from E and W lines of tract, N. Anderson Sur. ..... Sand 5,487-5,525 ft.; 4½-min. D.S. test 275 lbs. dry gas, ¼-in. choke; coring deeper.

Stanolind O. & G. Co.'s No. 2 Theis, J. H. Edwards Sur., 345 ft. S of N line and 466 ft. E of W line .... Dry and abnd. 5,643 ft.

Texas Co.'s No. 2 E. Mueller, 658 ft. W and 1,889 ft. N of SE cor. of tract ..... Sand and shale S.O. 5,576 ft.; cmtd. 7-in. csg. 5,570 ft.

Windsor Oil Co.'s No. 1 Petrick, J. H. Edwards Sur., 467 ft. from N and E lines of tract ..... Comp. 120 bbls. 24 hrs., ½-in. choke, 5,568 ft.; T.P. 850 lbs.; C.P. 2,150 lbs.

ESPERSON—LIBERTY COUNTY

General Crude Oil Co.'s No. 7 Davis (W.O.), Duncan Sur.. T.D. 7,510 ft.; D.S. stuck.

General Crude Oil Co.'s No. 18 Esperson, C. W. Fisher Sur., 400 ft. S of No. 7 (W.O.) ..... No report.

HULL—LIBERTY COUNTY

Gulf Prod. Co.'s No. 1 Bregga, 50 ft. each way from NE cor. of lease, J. Devore Sur. ..... Drlg. sticky shale 4,932 ft.

Gulf Prod. Co.'s No. 95 Phoenix, Jesse Devore Sur. .... Drlg. gumbo 432 ft.

Humble O. & R. Co.'s No. 34 Hooks-Guedry, Jesse Devore Sur., 443 ft. from W line, 50 ft. from S line of lease ..... Drlg. shale 556 ft.

Humble O. & R. Co.'s No. 13 Hooks-Spell, Jesse Devore Sur., 50 ft. from S line, 150 ft. from E line of lease ..... Drlg. shale 554 ft.

Sun Oil Co.'s No. 2-A Carr, 197 ft. W of No. 1, Jesse Devore Sur. ..... No report.

Republic Prod. Co.'s No. 150 Dolbear, J. Devore Sur., 250 ft. E of No. 81 ..... Drlg. shale 2,620 ft.

Texas Co.'s No. 5 Barrow fee, J. Devore Sur., 533 ft. S, 150 ft. W of NE cor. of lease ..... Pulling screen to deepen 4,955 ft.

Texas Co.'s No. 6 Barrow fee, 383 ft. S, 150 ft. W from NE cor. of tract, Jesse Devore Sur. ..... Derrick.

Yount Lee Oil Co.'s No. 5 Hooks fee, 200 ft. E, 50 ft. N of S line of lease, J. Devore Sur. ..... Comp. flowing 35 bbls. per hour 4,400 ft.

Yount Lee Oil Co.'s No. 6 Hooks fee, 50 ft. from N, 150 ft. from E line of lease, J. Devore Sur. ..... Comp. flowing 30 bbls. per hour 4,583 ft.

CONROE—MONTGOMERY COUNTY

Alpha Pet. Co.'s No. 2 South Tex. Dev. Co., W. A. McGowen Sur., 248 ft. S line, 480 ft. W line ..... Drlg. shale 4,820 ft.

Feltex Oil Co.'s No. 1-B South Tex. Dev., L. Smith Sur., 571 ft. W line, 467 ft. S line of tract ..... Drlg. sand and shale 5,020 ft.

Gulf Coast Drlg. & Prod. Co.'s No. 3 J. L. Hensley, A. Steele Sur., 466 ft. S line in center E and W of strip ..... Derrick.

Gulf Coast Drlg. & Prod. Co.'s No. 13 Keystone Mills, A. James Sur., 467 ft. W line, 933 ft. S of No. 11.. Derrick.

Gulf Coast Drlg. & Prod. Co.'s No. 14-A Keystone Mills, A. James Sur., 840 ft. W of No. 3 ..... Derrick.

Gulf Coast Drlg. & Prod. Co.'s No. 15-A Keystone Mills, A. James Sur., 850 ft. W of No. 14 ..... Drlg. shale 1,526 ft.

Gulf Coast Drlg. & Prod. Co.'s No. 19-A Keystone Mills, A. S. James Sur. ..... Comp. 75 bbls. per hour, ½-in. choke, 5,133 ft.

Gulf Coast Drlg. & Prod. Co.'s No. 29-A Keystone Mills, A. S. James Sur. ..... Derrick.

Gulf Oil & Sulphur Co.'s No. 2 Springfield, J. S. Springfield Sur., 466 ft. from SW line, 100-ac. lease ..... Derrick.

Humble O. & R. Co.'s No. 4 Am. Nat., Wilson Strickland Sur. ..... Drlg. shale 1,831 ft.

Humble O. & R. Co.'s No. 4-B Cartwright, J. A. Davis Sur. ..... Comp. 38 bbls. per hour, ½-in. choke, 5,158 ft.

Humble Oil & Ref. Co.'s No. 20 Keystone Mills, A. Steele Sur., 793 ft. W of No. 19 ..... Drlg. shale 962 ft.

Humble O. & R. Co.'s No. 17 Madeley, Ransom House Sur. ..... Cmtd. csg. 5,030 ft.

Humble O. & R. Co.'s No. 38 Madeley, Ransom House Sur. ..... Cmtd. 7-in. csg. 5,055 ft.

Humble O. & R. Co.'s No. 1 American Natl. Bank .... Comp. 77 bbls. per hour, ½-in. choke, 5,127 ft.

Humble O. & R. Co.'s No. 10 Emory, W.C.R.R. Sur. .... Drlg. shale 3,628 ft.

Humble O. & R. Co.'s No. 45 Moore, L. Smith Sur., 842 ft. E of No. 46 ..... Drlg. shale 5,060 ft.

Humble O. & R. Co.'s No. 3 A. Morehead, Trevathan Sur.. Spudded.

Humble O. & R. Co.'s No. 7 Rooker ..... Comp. 85 bbls. per hour, ½-in. choke, 5,131 ft.

Humble O. & R. Co.'s No. 55 So. Tex. Dev., T. Slade Sur., 933 ft. E of No. 54 ..... Cmtd. 7-in. csg. 5,060 ft.

Humble O. & R. Co.'s No. 60 South Tex. Dev. Co., T. Slade Sur. ..... Shale 5,140 ft.; cmtd. csg.

Humble O. & R. Co.'s No. 5-C South Tex. Dev. Co., T. Slade Sur., 700 ft. SW of No. 4-C ..... Shale 5,120 ft.; cmtd. csg.

Humble O. & R. Co.'s No. 1-G So. Tex. Dev. Co. ..... Comp. 69 bbls. per hour, ½-in. choke, 5,142 ft.

Pine Tree Oil Co.'s No. 1 South Tex. Dev. Co., T.&N. O. Sur. No. 13, 1,600 ft. W line, 810 ft. S line of Sur.. Sand showing oil and gas 5,097 ft.; cmtd. 7-in. csg.

Strake Pet., Inc.'s No. 5 Etheridge, Stephen Bryan Sur., 712 ft. W of No. 2 ..... Drlg. sand and shale 5,050 ft.

Strake Pet., Inc.'s No. 6 Etheridge, S. H. Bryan Sur., 712 ft. W of No. 5 ..... Rigging up.

Strake Pet., Inc.'s No. 5 Krohn, S. H. Bryan Sur., 711 ft. W of No. 2 ..... Comp. 60 bbls. per hour, ½-in. choke, 5,137 ft.

Sun Oil Co.'s No. 32 Foster ..... Derrick.

Sun Oil Co.'s No. 10 Keystone Mills, A. Steele Sur. .... Drlg. shale 3,107 ft.

Texas Unity Oil Co.'s No. 1-B Allen ..... Comp. 96 bbls. per hour, ½-in. choke, 5,100 ft.

Tide Water Oil Co.'s No. 2 American Natl. Bank, W. Strickland Sur., 250 ft. N, 200 ft. E line of lease... Comp. 84 bbls. per hour, ½-in. choke, 5,120 ft.

Tide Water Oil Co.'s No. 4 Amer. Natl. Bank, 200 ft. S, 466 ft. E line of tract, W. Strickland Sur. ..... T.D. 5,067 ft.; cmtd. 7-in. csg. 5,058 ft.

Tide Water Oil Co.'s No. 14 Dean, 330 ft. N line and 1,650 ft. from W line of lease ..... T.D. 5,088 ft.; cmtd. 7-in. csg. 5,074 ft.

Tide Water Oil Co.'s No. 8 Krohn, 330 ft. from S and E lines, S. H. Bryan Sur. ..... Comp. 92 bbls. per hour, ½-in. choke, 5,125 ft.

Tide Water-Republic's No. 9 South Tex. Dev. Co., 467 ft. from W line, 1,533 ft. from N line of tract, T.&N.O. Sur. No. 5 ..... Drlg. shale and sand 3,440 ft.

ORANGE—ORANGE COUNTY

Gulf Prod. Co.'s No 12 Hager-Moore (W.O.) ..... S.D. 6,399 ft.

PORT NECHES—ORANGE COUNTY

Texas Co.'s No. 2 Orange Natl. Bank, Jacob Beaumont Sur., 1,538 ft. W and 200 ft. S of NE cor. of lease ... Derrick.

Texas Co.'s No. 2-B Polk, 695 ft. N, 150 ft. S of NE cor. of N. Jacob Beaumont Sur. ..... Sand 4,740-65 ft.; 15-minute D.S. test 41 thribbles S.W. and 1 thribble of mud.

LIVINGSTON—POLK COUNTY

Vick Borsodi et al's No. 1 West, E 3½ acres of 35 acres, Roberts tract A. Viesca Sur. ..... T.D. 4,370 ft.; P.B. to 4,356 ft.

Gist Oil Co.'s No. 1 Kingsbury County Holding Corp., A. Viesca Sur., 150 ft. N at R/A and 193 ft. E along S line of tract ..... Sandy shale 4,242 ft.; cmtd. 7-in. csg. 4,129 ft.

Humble O. & R. Co.'s No. 8 Grandbury, 466 ft. from NE line, 466 ft. from NW line, Sec. 14, A. Viesca Sur. ..... Abnd. 4,560 ft.

GRETA—REFUGIO COUNTY

Atlantic Oil Prod. Co. et al's No. 5-A J. J. O'Brien, 933 ft. E of No. 3-A, 466 ft. S of N line ..... Derrick.

Atlantic Oil Prod. Co.'s No. 2-B J. J. O'Brien, 466 ft. each way from SE cor. of 50-ac. lease, N. S. Crunk Sur. ..... Sandy shale 4,395 ft.; cmtd. csg.

Atlantic Oil Prod. Co.'s No. 2-J O'Brien, 466 ft. from SE cor. J. H. Peoples Sur. ..... Comp. 30 bbls. per hour, ¼-in. choke, 4,380 ft.

Blanco Oil Co.'s No. 3-A J. J. O'Brien, N. S. Crunk Sur. ..... Drlg. shale 4,350 ft.

Dash Prod. Co.'s No. 2-E O'Brien, N. S. Crunk Sur., 466 ft. N of SE line, center E and W of tract .... Sandy shale 4,400 ft.; cmtd. csg.

Floboots Oil Corp.'s No. 1 M. C. Bauer, 330 ft. N line, 1,724 ft. from W line, J. M. Ximines Sur. ..... No report.

Humble O. & R. Co.'s No. 3 Fannie Heard, 825 ft. E of most northerly NW cor. of lease and 466 ft. S of most northerly line at R/A, N. S. Crunk Sur... Rig.

Humble Oil & Ref. Co.'s No. 3 Fannie Heard, 825 ft. E of most northerly NW cor. and 466 ft. S of most northerly line at R/A ..... Rig.

Humble O. & R. Co.'s No. 1 J. E. B. Heard, 466 ft. from SW cor. 500-ac. tract, J. H. Peoples Sur. ..... Flowed 117 bbls. 24 hours, 3/16-in. choke, 4,395 ft.

Humble O. & R. Co.'s No. 1 Wilder, 466 ft. S line, 313 ft. E line, J. T. McGrew Sur. ..... Drlg. shale 3,820 ft.

Edwin M. Jones' No. 5-A J. M. O'Brien, N. S. Crunk Sur., 933 ft. E of No. 4 ..... No report.

Edwin M. Jones' No. 6 O'Brien, N. S. Crunk Sur., 1,399 ft. from E line, 466 ft. from S line of tract..... Derrick.

Edwin M. Jones' No. 7 O'Brien, N. S. Crunk Sur. ..... Derrick.

Edwin M. Jones' No. 8-A O'Brien, N. S. Crunk Sur., 466 ft. W of E line, 1,629 ft. N of S line of lease.. Drlg. shale 3,455 ft.

Nesral Oil Co.'s No. 1 Ira Heard, M. J. Ximines Sur., 330 ft. out of NW cor. of 25-ac. tract ..... No report.

Nesral Oil Co.'s No. 1 V. E. Heard, 466 ft. N line, 266 ft. W line, M. J. Ximines Sur. ..... No report.

Nesral Oil Co.'s No. 2 W. Heard, 710 ft. W line, 1,510 ft. N line of lease, M. J. Ximines Sur. ..... Rig.

Southwest Oil Corp.'s No. 4-B O'Brien, N. S. Crunk Sur., 466 ft. N of S, 466 ft. E of W line of lease.. Comp. 30 bbls. per hour 4,388 ft.

Stanolind O. & G. Co.'s No. 1 J. M. O'Brien (Blk. 11), E. H. Winfield Sur., 500 ft. from E line, 466 ft. from S line ..... Drlg. sand and shale 4,110 ft.

Stanolind O. & G. Co.'s No. 1 J. M. O'Brien (Blk. 13), E. H. Winfield Sur., 466 ft. from S line, 500 ft. from E line ..... Drlg. sandy shale 3,350 ft.

Trinity Drillers' No. 1 Welder, J. T. McGrew Sur., 466 ft. from S and W lines, J. F. Welder 266-ac. tract.. Drlg. shale 5,902 ft.

United Prod. Co.'s No. 12 Fox, 1,450 ft. NW of No. 11, Hews & Brown Sur. ..... Sand 3,492-3,507 ft.; set screen.
United Prod. Co.'s No. 6 Lambert, C. S. Hardwick Sur., Blk. 2, 2,466 ft. from N line, 506 ft. from E line.. Drlg. sand 3,559 ft.

CLAY CREEK—WASHINGTON COUNTY

M. O. N. T. Oil Co.'s No. 1 Giddings ..... No report.
Sun Oil Co.'s No. 8 Janner, J. W. Perry Sur., 300 ft. SE of No. 7, 150 ft. SW of the creek ..... Rig.
Sun Oil Co.'s No. 3 Schermer, N. Clay Sur., 330 ft. NW, 330 ft. SW line of lease ..... T.D. 2,195 ft.; reaming to set csg.

SOUTH LOUISIANA FIELDS

BLACK BAYOU—CAMERON PARISH

Shell Pet. Corp.'s No. 17 Watkins, 660 ft. E of No. 15, in Sec. 18-12s-12w ..... Sand 4,126-42 ft; flowing 339 bbls. 24/64-in. choke; T.P. 130 lbs.; C.P. 40 lbs.

CAMERON MEADOWS—CAMERON PARISH

Burton-Sutton Oil Co.'s No. 3 School Land, 155 ft. N and 2,974 ft. E of SW cor. of Sec. 16-14s-13w ..... Bldg. road to location.
Humble O. & R. Co.'s No. 4 Cameron Meadows, 360 ft. N, 600 ft. W, SE cor. Sec. 21-14s-13w ..... Drlg. sand 7,012 ft.
Humble O. & R. Co.'s No. 5 Cameron Meadows, 2,260 ft. W, 28 ft. S of NE cor. Sec. 21-14s-14w..... Rig.

EDGERLY—CALCASIEU PARISH

S. A. Emerson's No. 13 Hunter, 465 ft. N, 90 ft. E, SW cor. Sec. 21-9s-11w (W.O.) ..... Standing 4,118 ft.
Union Sulphur Co.'s No. 1 Hunter, 210 ft. E, 1,260 ft. N of SW cor. SE Sec. 21-9s-11w ..... No report.
Yount Lee Oil Co.'s No. 1 Sulphur Mining Co., 150 ft S, 300 ft. W, NE cor. Sec. 33-9s-11w ..... Drlg. sand 6,985 ft.

GARDEN ISLAND—PLAQUEMINES PARISH

Texas Co.'s No. 10 Garden Island ..... T.D. 1,875 ft.

GUEYDAN—VERMILLION PARISH

Pure Oil Co.'s No. 6 Alliance Trust, 667 ft. E, 1,787 ft. S line of lease, Sec. 34-11s-1w..... T.D. 1,138 ft.; trying to cmt. 18⅝-in. csg. 918 ft.
Pure Oil Co.'s No. 5 Mulvey, 600 ft. from No. 2 Mulvey, in line with Nos. 1 and 2 ..... T.D. 4,917 ft.; reaming.

HACKBERRY—CAMERON PARISH

Wilford Lahay et al's No. 1 Roux (W.O.) ..... No report.
Red Kelly Oil Co.'s No. 1 Duhon, 200 ft. S, 500 ft. E, NW cor. Sec. 27-12s-10w ..... Rigging.
Texas Co.'s No. 11-B State ..... Drlg. 2,212 ft.
Union Sulphur Co.'s No. 1 Barber est., 1,720 ft. N line, 320 ft. E of SW cor. Sec. 12-12s-10w..... No report.

IOWA—CALCASIEU AND JEFF DAVIS PARISHES

Barnsdall Oil Co.'s No. 3 Fontenat, 1,627 ft. S, 330 ft W from SW cor. Sec. 7-9s-6w..... Sand 6,983-97 ft.; comp. 1,360 bbls. daily, 24/64-in. choke; T.P. 1,100 lbs.; C.P. 1,350 lbs.
Barnsdall Oil Co.'s No. 2 Fontenot, 990 ft. N and 330 ft. E of SW cor. of Sec. 7-9s-6w ..... Rig.
Magnolia Pet. Co.'s No. 5 Waite, 660 ft. E, 300 ft. N, SW cor. SE Sec. 12-9s-7w ..... Set screen 6,970 ft.
Shell Pet. Corp.'s No. 1 Ardoin, 330 ft. out of NW cor. 80-ac. tract, Sec. 7-9s-6w ..... Drlg. sticky shale 6,365 ft.
Shell Pet. Corp.'s No. 1 Johnson, 265 ft. S, 330 ft. E of NW cor. SW Sec. 18-9s-6w ..... T.D. 6,804 ft.; D.S. test 6,777 ft.
Shell Pet. Corp.'s No. 5 A. D. Fontenot, west offset Barnsdall's No. 1 ..... Rig.
Shell Pet. Corp.'s No. 1 C. Le Blew, 660 ft. W, 330 ft. N of SE cor. of lease ..... Cored sand 6,527 ft.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 13 Houssiere-Latrielle, Sec. 47-9s-2w, 300 ft E of No. 12 ..... No report.

LAKE BARRE—TERREBONNE PARISH

Texas Co.'s No. 10 L.L.&E., 4,543 ft. S, 503 ft. W of NW cor. Sec. 30-21s-20 ..... No report.
Texas Co.'s No. 22 State-Lake Barre, 150 ft. northerly from No. 18 ..... Drlg. hard sand 5,896 ft.
Texas Co.'s No. 20 State-Lake Barre, 392 ft. northerly from No. 22, Sec. 30-21s-20e ..... Derrick.
Texas Co.'s No. 25 State-Lake Barre ..... No report.
Texas Co.'s No. 26 State-Lake Barre, 150 ft. northerly from No. 22 ..... Derrick.

LEESVILLE—LAFOURCHE PARISH

Gulf Ref. Co.'s No. 1 Community, Blk. C, 151 ft. N of S line, 100 ft. E of E bank of Bayou La Fourche, Sec. 23-21s-22e ..... Drlg. sandy shale 5,572 ft.
Gulf Ref. Co.'s No. 1 Community, Blk. E, 151 ft. N of S line, 150 ft. E of E bank of Bayou La Fourche, Sec. 23-21s-22e ..... Derrick.
Gulf Ref. Co.'s No. 1 Le Fort, 100 ft. N of S line, 100 ft. W of N bank of Bayou La Fourche, Sec. 23-21s-22e ..... Drlg. shale 6,193 ft.
Hellis et al's No. 1 State-Bayou Lafourche, 315 ft. N along W side of bayou at R/A, 96 ft. E at R/A from SE cor. Lot 3, Sec. 26-21s-22 ..... No report.
Texas Co.'s No. 8 L.L.&E., 2,321 ft. due S, 450 ft. W from NE cor. Sec. 27-21s-22e ..... Drlg. water sand 3,955 ft.
Texas Co.'s No. 10 L.L.&E., 3,500 ft. due S, 375 ft. due W of NE cor. Sec. 27-21s-22e ..... Drlg. hard sand 3,756 ft.
R. Y. Walker's No. 1 State-Bayou Lafourche, 930 ft. N along W line of Lot 6 from SW cor. section, thence 430 ft. at R/A, Sec. 26-21s-22 ..... No report.

LOCKPORT—CALCASIEU PARISH

Magnolia Pet. Co.'s No. 7 Farquaher, 330 ft. S, 174 ft. W of NE cor. SW NE Sec. 8-10s-9w ..... No report.
Magnolia Pet. Co.'s No. 11 Bordages, 660 ft. N, 490 ft. W of SE cor. NE NE Sec. 8-10s-9w ..... Drlg. sandy shale 6,453 ft.
Magnolia Pet. Co.'s No. 4-A Watkins fee, 685 ft. E, 200 ft. N of SW cor. NW NE Sec. 9-10s-9w..... Sand 6,875-90 ft.; drlg. plug.
Union Sulphur Co.'s No. 1 Farquaher, 200 ft. S and W lines, NE cor. SW SE Sec. 36-12s-10w, 2-ac. tract ....No report.
Union Sulphur Co.'s No. 2 Moss (W.O.), 350 ft. S, 210 ft. W of NE cor. NW SE ..... T.D. 5,658 ft.

PORT BARRE—ST. LANDRY PARISH

Gulf Ref. Co.'s No. 5 Wilson-Cockran, 600 ft. N, 910 ft. E of No. 2, Sec. 4-6s-5e ..... Drlg. shale 3,691 ft.
Texas Co.'s No. 17 Botney Bay, 1,800 ft. S 8 deg. W. 600 ft. N 82 deg. most southern NE 560 deg. tract, Sec. 4-6s-5e ..... Derrick.
Texas Co.'s No. 19 Botney Bay ..... Drlg. gumbo 1,425 ft.
Texas Co.'s No. 1 Perkins, 2,501 ft. S, 1,003 ft. E of NW cor. Sec. 21-6s-5e ..... Shale 3,875 ft.

SORRENTO—ASCENSION PARISH

Union Sulphur Co.'s No. 2 Lacy White Frank, 1,175 ft. N, 1,615 ft. W of SE cor. Sec. 16-10s-4e ..... Standing 4,593 ft.
Union Sulphur Co.'s No. 25 United Land ..... Drlg. shale 5,242 ft.

STARKS—CALCASIEU PARISH

Union Sulphur Co.'s No. 4 Industrial Lbr. Co., 2,254 ft. from W, 2,116 ft. from S line, NE cor. Sec. 30-9s12w. Drlg. 3,950 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 787 fee, 119 ft. from N line, 1,632 ft. from W line of C Sec. 29-9s-10w..... Set screen 4,923 ft.
Union Sulphur Co.'s No. 788 fee, 602 ft. S, 1,309 ft. W. of C Sec. 29-9s-10w ..... Drlg. water sand 4,916 ft.
Union Sulphur Co.'s No. 789 fee, 1,653 ft. N, 795 ft. E, C, Sec. 29-9s-10w ..... Sand S.O. 3,067-75 ft.; set screen; flowing; no gauge.
Union Sulphur Co.'s No. 790 fee, 929 ft. S and 802 ft. W of center of Sec. 29-9s-10w ..... Drlg. gumbo 1,226 ft.
Union Sulphur Co.'s No. 744 fee, 2 ft. S and 34 ft. W. C Sec. 29-9s-10w (O.W.) ..... Swabbing 4,410 ft.
Union Sulphur Co.'s No. 791 fee, 529 ft. N, 907 ft. E of SW cor. Sec. 33-10s-12w ..... Rig.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 12 Yount Lee fee, 800 ft. S of No. 11, in line with Nos. 9 and 11, Sec. 12-13-8w..... T.D. 1,139 ft.; cmtd. 18⅝-in. csg. 1,061 ft.

WHITE CASTLE—IBERVILLE PARISH

Shell Pet. Corp.'s No. 8 Wilbert, 717 ft. N 60 deg. 30 min. E from SE of Lot 2 of Fractional Sec. 9, in Sec. 1-11s-12e ..... Drlg. sand and shale 1,036 ft.

VINTON—CALCASIEU PARISH

Gulf Prod. Co.'s No. 9 Gardner ..... Drlg. sand 1,852 ft.
Marrs McLean's No. 16 Gray, 426 ft. N, 658 ft. E of SW cor. Sec. 33-10s-12w ..... No report.
Starks & Broker's No. 11 A. J. Vincent, NW cor. SE Sec. 33-10s-12w ..... No report.
Wilson Broach's No. 10 Wilson Strip, 650 ft. N, 379 ft. E, SW cor. SE NE Sec. 33-10s-12w..... Derrick.
Wilson Broach Co.'s No. 13 Wilson strip, 50 ft. N and 907 ft. E of SW cor. of Sec. 33-10s-12w ..... Rig.
Union Sulphur Co.'s No. 1 Vincent ..... No report.
Vinton Pet. Co.'s No. 14 Wilson Strip, 50 ft. N, 642 ft. E of SW cor. SE NE Sec. 33-10s-12w..... No report.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

Gem Oil Co. et al's No. 1 Klump, Steven F. Austin Sur., No. 4 League, 345 ft. from N cor. of S. D. Bostwick Sur., Abst. 18, in fork of Mill Creek ..... No report.
Tibbetts et al's No. 1 Heideman, 4,320 ft. W along N line from NE cor. of A. Larson Sur. in J. Cooper Sur., thence 416 ft. N at R/A ..... No report.
R. R. Mitchell's No. 1 H. Schierda, J. F. Fitzgibbons Sur., 300 ft. out NE cor. 96-ac. tract ..... Location.

BRAZORIA COUNTY

Danciger O. & R. Co.'s No. 1 L. Williams, 700 ft. NE line, 726 ft. SE line of 180-ac. tract, W. C. Carson Sur. ..... T.D. 6,770 ft.; cmtd. 7⅝-in. csg. 6,734 ft.
Shell Pet. Corp.'s No. 2 Harvey (Danbury), H.T.&B. R.R. Sur., 720 ft. SE of No. 1 Blakely-Winston. ... Drlg. shale 3,185 ft.

BRAZOS COUNTY

H. Elliott et al's No. 1 W. F. Odom, near center of 379-ac. tract in SW cor. of Isaac Curll Sur. ..... Cmtd. surface csg.
Liner et al's No. 1 Peters, 300 ft. SE line, 300 ft. SW line of E. V. Peter fee, G. Powell Sur. ..... Derrick.
F. H. Scott's No. 1 Klintworth, I. Curd Sur., 300 ft. from N line, 400 ft. from E line ..... T.D. 1,487 ft.; gas sand 1,393-1,420 ft.; preparing to resume drilling.

COLORADO COUNTY

Hughes-Patrick Oil Co.'s No. 1 Lake Side Irrigation, 1,500 ft. SE, 500 ft. NE NW cor. Patrick Reel Sur. ..Standing 3,682 ft.
Humble O. & R. Co.'s No. 1-A O. M. Powell, I.&G.N. Sur. No. 44, 150 ft. E of W line, 600 ft. N of S line of lease ..... Derrick.

FAYETTE COUNTY

Colorado Oil Corp., J. Winn Sur., 650 ft. NE of center of SW line of 63.8-ac. tract ..... T.D. 2,139 ft.; standing.

FORT BEND COUNTY

O'Connor Dome Oil Co.'s (was A. N. Phillips et al's) No. 1 Grigar, 2,150 varas E line, 1,550 varas N line, J. S. O'Connor Sur. ..... Drlg. shale and lime 3,787 ft.
Quintana Oil Co.'s No. 1 Wood, O'Connell, Miller, S 87 deg. E, 13,000 ft. from SW cor. of lease ..... Drlg. shale 5,703 ft.
J. P. White's No. 1 Wing, B. Osborne Sur., 2,000 ft. from N, 4,000 ft. from E line of tract ..... Standing 750 ft.

GRIMES COUNTY

Clark & Dodd's No. 1 Murry, 150 ft. W line, 300 ft. S line, Anderson Sur. ..... Standing 715 ft.
Cambrian Oil Co.'s No. 1 W. V. Sangster, John Moore Sur., 200 ft. out of most westerly NW cor. of 218-ac. tract ..... Derrick.
Foster et al's No. 1 Quinn, 7,100 ft. from W line, 3,900 ft. from N line of S. F. Austin Sur. ..... Sand 3,492-3,503 ft.; D.S. test showed mud and S.W.
Humble O. & R. Co.'s No. 1 Henderson, 750 ft. S, 700 ft. W at R/A of NE cor. of lease, G. W. Seaton Sur. ..... Drlg. shale 5,818 ft.
H. C. Ratcliff's No. 1 Fulgham, A. Tuttle Sur., 600 ft. N line, 540 ft. W line of lease ..... Derrick.
O. C. Rush's No. 1 J. C. League, V. Sanders Sur., 165 ft. N, 455 ft. W of lease ..... S.D. 2,650 ft.

HARRIS COUNTY

J. A. Hodges' No. 1 Scott, 200 ft. S, 900 ft. W of intersection of Crosby Huffman, F. Rankin Sur. ..... S.D. 3,540 ft.
Turnbull & Irwin's No. 1 Dunn, Enoch Brinson Sur., 1,550 ft. N line, 1,200 ft. W of NW cor. of Johnson Hunter Sur. ..... Drlg. sandy shale 3,787 ft.

HOUSTON COUNTY

Thompson et al's No. 1 E. W. Harrison, 330 ft. out E cor. 130-ac. tract, J. Masters, Sr., Sur. ..... No report.
Murmac Oil Co.'s No. 1 G. L. Murray & Son, John Durst Sur. ..... Preparing to resume drlg. 3,186 ft.

JEFFERSON COUNTY

Lucky Strike Oil Co.'s No. 1 Walker, D. Easley Sur., 2,100 ft. N, 1,400 ft. E of NW cor. of Lot No. 13. S.D. 1,510 ft.
Sun Oil Co.'s No. 1 H. Long, 1,500 ft. N line, 990 ft. E line of lease ..... Drlg. shale 4,207 ft.

LIBERTY COUNTY

Brown & Wheeler's No. 1 Foster Lbr. Co., Ann Holhousen Sur., 612 varas S of N line and 4,269 varas W of E line ..... Drlg. shale 4,009 ft.
Gulf Prod. Co.'s No. 2 Kirby, John Pleasants Sur., 1,866 ft. S of No. 1 ..... Rig.
Gulf Prod. Co.'s No. 1 Grogan, Clayton Harper Sur., 1,500 ft. from E line and 466 ft. from S line ..... Derrick.
Miramar Oil Corp.'s No. 1 Crowe & Jacobs, H.&T.C. Sur. 21, 950 ft. W of E line, 110 ft. N of S line of 300-ac. tract ..... Rig.
Thomas et al's No. 1 A. Ercke, 600 ft. E of W line, 2,350 ft. N of S line, A. H. Ercke Sur. in Reason & Green Sur. ..... S.D. 5,000 ft.

MATAGORDA COUNTY

H. E. Clark et al's No. 1 Turner, M. Cummings Sur., 4,900 ft. NE line and 3,800 ft. SE line ..... Fishing D.P. 4,373 ft.
Continental Oil Co.'s No. 1 Boker, 400 ft. out of SW cor. Lot 17, Robbins & Middle Subd., J. W. Criswell Sur. ..... T.D. 6,564 ft.; bailed dry; S.D.
Oils Consd., Inc.'s No. 1 Hawkins, Daniel McCarthy Sur., 1,240 ft. NE, 350 ft. NW of S cor. ..... T.D. 5,510 ft.; sidetracked 5,190 ft.; D.S. stuck.
Skelly Oil Co.'s No. 1 Cobb, M. Cummins Sur., 434 ft. from E, 1,506 ft. S of F. G. Cobb's 167-ac. tract ... Drlg. shale 4,521 ft.
United North & South Dev. Co.'s No. 1 Unit 6 (No. 2 Stoddard), 25 ft. each way out of NW cor. of Lot 19, Buckeye townsite ..... Drlg. sandy shale 8,585 ft.
United North & South Dev. Co.'s No. 1 Unit 25, 1,335 ft. S, 1,000 ft. E of No. 1 Unit 6 ..... Drlg. shale 8,485 ft.

MONTGOMERY COUNTY

Baker et al's No. 1 Benker, D. James Sur. ..... T.D. 4,921 ft.; P.B. to 4,909 ft.; tested S.W.; S.D.
Steen Drlg. Co.'s No. 1 Long Bell Lbr. Co., 440 ft. S and E from NW cor. of Wilson Barker Sur. ..... Moving in material.
Sutton & Hawkins' No. 2 Foster est., 90 ft. E of No. 1, A. M. Del Garza Sur. ..... Drlg. shale 3,570 ft.

NACOGDOCHES COUNTY

James W. Rich's No. 1 Unknown, J. L. Ewing Sur., 2,777 ft. from W line, 5,208 ft. from S line of survey.. No report.

ORANGE COUNTY

Texas Louisiana Oil Co.'s No. 1 Starks, 2,450 ft. N of NW cor. M. Delano Sur. 68, 10,500 ft. E at R/A. .. T.D. 1,197 ft.; standing.

REFUGIO COUNTY

Humble O. & R. Co.'s No. 11 O'Connor, Powers & Hewitson Sur., 301 ft. S, 833 ft. E of No. 10 ..... Drlg. shale 1,895 ft.

Holland Oil Co.'s No. 1 Peck, 366 ft. N and W from SW cor. Sec. 24, Bonnie View Subd. ..... Drlg. shale 3,855 ft.

TRINITY COUNTY

T. M. Smith et al's No. 1 C. Moody, E. Roberts Sur., 552 ft. W of E line, 1,202 ft. N of S line, of 40-ac. tract ..... Drlg. sand and shale 2,650 ft.

TYLER COUNTY

Turnbull & Irwin's No. 1 Kirby Lbr. Co., J. J. Pemberton Sur., 1,238 ft. E from SW cor. of Ledrick Lbr. Co.'s 381-ac. tract, thence S 250 ft. at R/A .. Sand showing gas 3,387 ft.; S.D.

VICTORIA COUNTY

J. F. Camp's No. 2 Maurer, 3,300 ft. SW of No. 1 ..... Drlg. shale 2,305 ft.

Texas Co.'s No. 7-A McFaddin, 250 ft. due N of No. 7, A. J. Gray Sur. ..... T.D. 1,599 ft.; pumping mud

Texas Co.'s No. 8 McFaddin, A. J. Gray Sur., 6,600 ft. N of S line, 1,383 ft. from E line of NE cor. ..... Drill stem stuck 3,609 ft.

WHARTON COUNTY

Monarch Oil Co.'s No. 1 Schateck, 150 ft. each way out of SW cor. G. W. Reynolds Sur. ..... Standing 1,475 ft.

Nabers et al's No. 1 Lurker, 210 ft. out of SE cor. of N½ SW Sec. 58, E.T.R.R. Sur. ..... T.D. 5,026 ft.; rebuilding derrick.

Pure Oil Co.'s No. 1 W. Garrett, Sec. 28, 4,456 ft. SE, 1,690 ft. NE of W cor. ..... T.D. 6,343 ft.; standing.

Pure Oil Co.'s No. 1 A. J. Wilder, T. W. Hurd Sur., 509, 2,575 ft. SE, 1,690 ft. NE from W cor. Sec. 28.. T.D. 7,614 ft.; reaming.

Pure Oil Co.'s No. 1 W. H. Lancaster, Morris & Cummings Sur., Sec. 23, 1,650 ft. NW, 1,600 ft. SW of E cor. of section ..... Fishing drill stem 7,142 ft.

Pure Oil Co.'s No. 1 Wallace Houston, 858 ft. SE of NW line, 1,690 ft. NE of SW line, Sec. 34, (T. W. Heard Sur.) ..... Sand 6,441-51 ft.; swabbing.

Pure Oil Co.'s No. 1 Isaac Weaver, J. M. Brownson Sur., Sec. 22, 1,650 ft. out of N cor. of section ..... T.D. 6,181 ft.; standing.

SOUTH LOUISIANA

ACADIA PARISH

Mills Bennett Prod. Co.'s No. 1 Riverside, 1,400 ft. S, 467 ft. E of NW cor. Sec. 61-9s-2w ..... Drlg. water sand 6,009 ft.

Superior Oil Co.'s No. 1 P. O. Hermandez, 990 ft. W, 990 ft. S of NE cor. SE Sec. 34-8s-3e ..... T.D. 6,100 ft.; cmtd. 7-in. csg. 5,957 ft.

I. M. Pharris' No. 1 Link Bros., 150 ft. S, 150 ft. E, NW cor. Sec. 36-7s-1e ..... S.D. 640 ft.

ASCENSION PARISH

Turnbull & Irwin's No. 1 Community (Darrow) ..... Rig.

BEAUREGARD PARISH

Humble Oil & Ref. Co.'s No. 1 Long Bell, 200 ft. E of W line and 2,640 ft. S of N line of Sec. 11-5s-7w ..... Derrick.

CALCASIEU PARISH

Gulf Ref. Co.'s No. 1 Sweet Lake Oil Co., 660 ft. N, 330 ft. E of SW cor. Sec. 29-10s-5w ..... Drlg. shale 7,572 ft.

Fred Oil Co.'s No. 1 Farast, 566 ft. N, 300 ft. W, SE cor. NW SE Sec. 26-8s-10w ..... S.D. 1,465 ft.

Union Sulphur Co.'s No. 1 Barbe, 2,631 ft. W, 2,647 ft. S of NE cor. Sec. 1-9s-8w ..... Drlg. shale 6,251 ft.

Union Sulphur Co.'s No. 1 Bernard Ulruch, 150 ft. out of SE cor. Sec. 9-9s-10w ..... Moving in.

EVANGELINE PARISH

J. E. Ledau's No. 3 Vidrine, 30 ft. S of No. 2, Sec. 47-3s-2e ..... No report.

Humble O. & R. Co.'s No. 2 Devilbiss, 1,850 ft. S, 250 ft. W of NE cor. Sec. 14-9s-4w ..... Tested S.W. 3,423 ft.; pulling screen.

Shell Pet. Corp.'s No. 1 Kratza, 660 ft. S, 330 ft. W of NE cor. NW Sec. 12-9s-4w ..... Fishing 4,810 ft.

LAFOURCHE PARISH

Barnsdall Oil Co.'s No. 1 Harang, Lot 6, Twp. 17s-20e.. T.D. 7,195 ft. in salt; P.B. to 6,300 ft.; drld. to 6,954 ft.; S.D.

ST. LANDRY PARISH

H. H. Hotchins Lbr. Co.'s No. 1 Whiteman Lbr. Co., 250 ft. out of SW cor. NE Sec. 15-5s-6e .. .. Drlg. water sand 1,755 ft.

ST. MARTIN PARISH

Standard Oil Co. of Kansas' No. 1 E. B. Hopkins, Sec. 33-10s-6e ..... Shale 7,146 ft.

TERREBONNE PARISH

Texas Co.'s No. 9 State-Dog Lake ..... Drlg. shale 6,189 ft.

Texas Co.'s No. 10 State-Caillou Island..... Drlg. sand 4,243 ft.

Texas Co.'s No. 2 State-Four Isle .. .. No report.

Texas Co.'s No. 1 State Bay-St. Elaine, 3,900 ft. N, 2,300 ft. E of SW cor. Sec. 8-22s-18e ..... Drlg. shale 363 ft.

Texas Co.'s No. 10 State-Lake Pelto, 420 ft. N, 1,246 ft. E, SW cor. Sec. 4-22s-18e ..... Drlg. shale 4,685 ft.

VERMILLION PARISH

Hammill & Smith's No. 1 Faulk, 600 ft. S, 400 ft. E of NW cor. Sec. 5-12s-3e ..... Drlg. 6,525 ft.

VERNON PARISH

Vernon Oil Co.'s No. 1 Delta Land & Lbr. Co. ..... Shale 2,600 ft.; standing.

Robt. K. Williams, Jr.'s No. 1 Llano Del Rio, 1,185 ft. S, 1,000 ft. W of NE cor. Sec. 7-1n-9w ..... Rig

Wildcat Operations in Southwest Texas

(Continued from Page 120)

EDWARDS COUNTY

Love and Evans' No. 1 Steve Brown, 660 ft. from N and E lines of Sec. 66, G.W.T.&P.R.R. Sur., 15 miles W of Rock Springs ..... T.D. 3,002 ft.; at contract depth; waiting on heavier rig.

FRIO COUNTY

Amerada Pet. Corp.'s No. 1 Frank Doering, 34 ft. from W line, 1,700 ft. from S line of Tract No. 7 in Marcia Louisa Carranza Sur. No. 302 ..... T.D. 6,064 ft.; D.S. stuck.

GUADALUPE COUNTY

A. F. Barnhill's No. 3 F. A. Phulliman, 1,300 ft. from N line, 152 ft. from E line of lease in L. Bollinger Sur. ..... T.D. 2,101 ft.; drlg.

HAYS COUNTY

J. C. Crowder's No. 1 Burnett, 2,370 ft. from E line, 1,400 ft. from N line of tract in J. Ingram Sur. .... T.D. 430 ft.; set csg.

HIDALGO COUNTY

Chancellor & Hall's No. 1 Garcia, 150 ft. from W line of Porcion No. 42, and 150 ft. N of old Military Highway ..... T.D. 3,187 ft.; D.D.

Daskom Bros.' No. 1 fee, center of Porcion No. 45, and ½ mile S of Highway No. 4 ..... T.D. 4,285 ft.; resumed drlg.

McGinley's No. 1 Francisco B. Guerra, 300 ft. from N and E lines of 40-ac. tract in Share 12, Porcion 41.. Spudded in.

JIM HOGG COUNTY

Clark & Cowden Drlg. Co.'s No. 3 E. Vela, 985 ft. from E line, 2,762 ft. from S line, Sec. 588 in El Peyote grant ..... Rigging up.

DeWitt C. DeWitt's (Scarp Oil Co.) No. 1 A. G. Lopez, 3,475 ft. from W line, 425 ft. from N line of Sur. No. 106 ..... T.D. 2,875 ft.; previously abd. at 2,500 ft.

Jay E. Jones' No. 1 Lum Saunders, center of Blk. 41, Sec. 9, Holbien Subd. of Las Animas grant ..... T.D. 2,490 ft.; drlg.

A. W. Majors' No. 1 M. Guerra & Son, 2,444 ft. from W line, 3,698 ft. from N line of Sur. No. 369, in SW part of county ..... Location.

JIM WELLS COUNTY

Plymouth Oil Co.'s No. 1 Cuero Cattle Co., 330 ft. from S and W lines of H.T.&B. Sur. No. 7, 2½ miles W from Alfred ..... Rigging up.

Trinity Drillers' No. 1 Seeligson, 330 ft. from N and E lines of Sec. 71, of R. P. Haldeman Subd., and in S.K.&K. Sur. No. 215 ..... T.D. 2,386 ft.; gas and 50 bbls. daily of 22 gravity oil; 650 lbs.

KARNES COUNTY

Campbell et al's No. 1 Ira Coats, 330 ft. from S and E lines of 260-ac. tract in Carlos Martinez Sur. .... T.D. 1,800 ft.; drlg.

C. J. Webster's No. 1 J. B. Cannon, 1,140 ft. from N line, 250 ft. from E line of 80-ac. tract in Lambrano Sur. ..... T.D. 1,790 ft.; standing.

KENDALL COUNTY

A. P. Pierce's No. 1 Werner, in SW cor. of 40-ac. tract 150 ft. from S and W lines, in J. F. Torrey Sur. .... T.D. 992 ft.; S.D.

W. E. Waldrip's No. 1 Charles Meckel, 300 ft. from E line, 3,300 ft. from S line of Thos. J. Sweeney Sur. No. 10 ..... T.D. 415 ft.; waiting for csg.

KERR COUNTY

J. E. Anderson's No. 1 J. D. Witt, 1,320 ft. from N line, 1,220 ft. from W line of Sec. 1,923, in Hamilton Sur., 4 miles S of Center Point ..... T.D. 1,885 ft.; standing in shale and sand.

Van Duyn & Moore's No. 1 Nowlin, 2,000 ft. from E line, 2,200 ft. from N line of Jas. R. Bettner Sur. No. 99 ..... T.D. 1,040 ft.; standing.

KLEBERG COUNTY

Harry Clark's No. 1 V. J. Kivlin, 360 ft. from E line, 400 ft. from S line of Sec. 39, Blk. 8; Kleberg Town & Improvement Co. Sur. ..... T.D. 2,050 ft.; S.D.

LEE COUNTY

H. A. Sherlack's No. 1 Otto, 736 ft. from NW line, 1,310 ft. from NE line of 57.5-ac. tract in Thomas Morrow Sur. ..... Location.

LIVE OAK COUNTY

H. Coquat et al's No. 1 Burgess, 990 ft. from W line of Sec. 77, 33 ft. from N line of Simmons Subd. in farm tract No. 3,487 ..... T.D. 1,875 ft.; coring.

Loma Oil Co.'s No. 1 Reiffert, 300 ft. from NW line, 1,100 ft. from SW line of 130-ac. tract, in Stephen Hays Sur. ..... Rigging up.

Marine Oil Corp.'s No. 1 J. B. Dunning, 4,500 ft. from E line, 150 ft. from N line of 462-ac. tract in Maria Bridget Klolin Sur. ..... Rigging up.

Stuart Mossman's No. 1 W. J. Armstrong, 2,970 ft. from S line, 330 ft. from W line of 269-ac. tract in Henry Sur. ..... T.D. 575 ft.; drlg.

MAVERICK COUNTY

C. L. Mahoney's No. 1 Wyche, 150 ft. from S line, 300 ft. from W line of 453-ac. tract in Sec. 20..... T.D. 240 ft.; drlg.

McMULLEN COUNTY

Armoil Prod. Co.'s No. 1 Kate Martin, 1,470 ft. from SE line, 1,470 ft. from SW line of H.T.&B. Sur. No. 9 ..... T.D. 2,023 ft.; drlg.

Lefevre & Spice's No. 1 Hagist, 330 ft. from N and E lines of S 200 acres of Sec. 17, of H.&T.C.R.R. Sur... T.D. 1,620 ft.; drlg.

Paul C. Teas' No. 4 Hagist, 330 ft. from S and W lines of 80-ac. tract, and 330 ft. from W line and about 2,250 ft from S line of Sur. No. 187 ..... Moving in.

Two Rivers Oil Co.'s No. 2 Two Rivers Ranch, 330 ft. from W line, 100 ft. from N line of Sec. 64, of Two Rivers Ranch Subd. ..... T.D. 317 ft.; standing.

Snider, Whisenant & Trenchard's No. 1 Bremer, 330 ft. from S and E lines of Blk. 15 of Borcher's Subd., 2 miles SW of Calliham ..... T.D. 846 ft.; drlg.

MEDINA COUNTY

O. R. Framme's No. 1 E. Boelke, 987 ft. from N line, 600 ft. from E line of 102-ac. tract in S. Huth Sur. No. 10 ..... T.D. 775 ft.; running csg. on account of cave.

MILAM COUNTY

O. H. Birdwell's No. 1 J. R. Bartek, 150 ft. from N line, 180 ft. from W line of 88-ac. tract in J. A. de Pena Sur. ..... T.D. 940 ft.; standing.

Fred Pederson's No. 1 T. E. Fulton, 1,000 ft. from NW line, 320 ft. from NE line of 148-ac. tract in Juan Jose Acosta Sur. ..... T.D. 1,148 ft.; drlg.

B. F. Robinson's No. 1 W. M. Caffey, 150 ft. N and E from SE cor. of B. P. Duncan Sur. and in 50-ac. tract in J. Bright Sur. ..... T.D. 2,410 ft.; drlg.

B. F. Robinson's No. 1 W. M. Caffey, 150 ft. N and E, of SE cor. of B. P. Duncan Sur. in SW cor. of 50-ac. Caffey tract in J. Bright Sur. ..... T.D. 1,965 ft.; laying wtr. line.

NUECES COUNTY

Texon Royalty Co.'s No. 1 McCoy, 330 ft. from W line, 3,830 ft. from S line, in Sec. 2 of Palo Alto Sur. .. T.D. 5,500 ft.; fishing for 59 fourbles of drill pipe lost while testing sand at 5,488-95 ft.

SAN PATRICIO COUNTY

Heep Oil Corp.'s No. 1 R. H. Welder, center of J. M. Portilla Sur. ..... T.D. 4,800 ft.; drlg.

STARR COUNTY

Accumulative Royalty Co.'s No. 1, Martinez, 800 ft. from S line, 500 ft. from W line of C.C.S.D.&R. G.N.G. Sur. No. 217 ..... T.D. 2,865 ft.; changing rigs.

B. & B. Oil Co.'s No. 2 Kelsey Bass, 330 ft. from W and S lines of Blk. 12 of Subd. of Porcions 86 and 87, jurisdiction Camargo ..... Rigging up.

Danvers & Harrison's No. 1 C. Ramos, 2,310 ft. from SE line, 330 ft. from SW line of Sur. No. 150 ..... T.D. 1,225 ft.; drlg.

Goodwin & Yantis' No. 4 Kelsey Bass, 330 ft. from N and E lines, Sec. 4, of subd. of Porcions 86 and 87.. T.D. 690 ft.; comp. 3,000,000 ft. gas.

Goodwin & Yantis' No. 3 Kelsey Bass, 150 ft. from S and E lines of Blk. 8, Coast O. & G. Subd. of Secs. 2 and 3, Porcions 86-87 ..... T.D. 1,040 ft.; P.B. to 200 ft.; comp. 5 bbls. daily.

Goodwin & Yantis' No. 5 Kelsey Bass, 150 ft. from S and W lines of Blk. 1, Sur. 3, of Coastal O. & G. Co.'s Subd. of Porcion 86, jurisdiction Camargo.... Rigged up.

Great Plains Oil Co.'s No. 1 Sanchez, 660 ft. from W line, 330 ft. from S line of SE NW of Sur. No. 344.. T.D. 3,865 ft.; making heads; waiting for csg.

Jeffries-Lambeth Drlg. Co.'s No. 2 Starr County Cattle Co., N of No. 1 in Share 60, Porcion 89 ..... Location.

W. H. Liber's No. 1 I. Y. Garcia, 1,546 ft. from N line, 962 ft. from W line of 254-ac. tract in Porcion No. 75, jurisdiction of Camargo ..... T.D. 840 ft.; drlg.

Myers, Sullivan & Jenkins' No. 1 Starr County Cattle Co., 330 ft. from N line, 330 ft. from W line, Blk. 62, Porcion 89, Share 60 ..... T.D. 2,520 ft.; standing.

R. D. Perkins & Hoffman's No. 1 E. A. Peffler, 3,090 ft. from W line, 2,480 ft. from S line of Sur. 933.. T.D. 1,100 ft.; standing.

TRAVIS COUNTY

Franklin et al's No. 1-A Reimers, 1,200 ft. from SE line, 1,600 ft. from most southerly SW line of Sur. No. 35 ..... T.D. 925 ft.; standing.

Marts & Beavens' No. 1 Mrs. A. Bengston, 150 ft. from SE line, 3,200 ft. from NE line fo Thos. Smith Sur... T.D. 722 ft.; abd.

G. M. Rowe's No. 2 Smith (200-ac. tract), 450 ft. from NE and SE lines of tract in L. Kimbro Sur. ..... Rigged up.

Weaver & Osborn's No. 1 Will Reinhardt, 300 ft. from NW line, 1,200 ft. from NE line of Will Reinhardt 100-ac. tract in William Lewis, Jr., Sur. 2 .... T.D. 248 ft.; abd.

UVALDE COUNTY

Frank A. Brown's No. 1 Milliken, 1,500 varas from W line which is Sabinal River, and 108 varas from S line of Antonio Cruz Sur. No. 333 ..... T.D. 565 ft.; drlg.

WEBB COUNTY

L. E. Lockhart's No. 1 E. Eikel, 330 ft. from N line, 260 ft. from E line of Sur. No. 1,672 ..... Rigging up.

Weekly Oil Co.'s No. 1 Laurel Bros., 330 ft. from N and W lines of SW of Sur. No. 1,103 ..... T.D. 2,755 ft.; abd.

WILSON COUNTY

Bexar Pet. Co.'s (formerly Humble) No. 1 Houston, 900 ft. from SE line, 450 ft. from SW line of tract in Jos. Reynolds Sur. ..... T.D. 5,206 ft.; coring Georgetown topped at 5,160 ft.

Bidnar & Powell's No. 1 L. C. George, 400 ft. from SE line, 475 ft. from SW line of 86.5-ac. tract in C. Dias Sur. No. 44 ..... T.D. 1,140 ft.; drlg.

WILLIAMSON COUNTY

McLean et al's No. 2 R. C. Miller, 800 ft. to S line, 100 ft. to W line of tract, B. Manlove Sur. ..... T.D. 2,360 ft.; standing.
R. S. Wilson's No. 2 Sing, 300 ft. from SW line, 1,250 ft. from SE line, of T. A. Moore Sur. ..... T.D. 350 ft.; standing.

ZAPATA COUNTY

J. P. Doyle's No. 1 I. Ramires, 150 ft. from NW and SW lines of Blk. 15, Share 1, Porcion 18 ..... T.D. 40 ft.; spudded in; S.D.
Muckelroy's No. 1 Flores, on NE line and 75 ft. from SE line of Lot 2, Blk. 30, Muckelroy Subd. of Porcion No. 37 ..... Derrick.

Southwest Texas Proven Areas

Week Ending January 20

CEDAR CREEK POOL—BASTROP COUNTY

Cole Pet. Co.'s No. 3 American Natl. Bank, 350 ft. W of No. 1 in R. Gage Sur. ..... Rigging up.
Marts & Beavens' No. 6 Reyes, 150 ft. from NW and SW of Amada Reyes' 233-ac. tract in Addison Litton League ..... Derrick.

HILBIG POOL—BASTROP COUNTY

Humble O. & R. Co.'s No. 2 F. O. Beck, 45 acres, 430 ft. from NE line of survey and tract, 750 ft. from SE line of tract, or 1,000 ft. SE of No. 1 in Andrew Maya Sur. ..... Rigging up.

NORTH DALE POOL—BASTROP COUNTY

Marts & Beavens' No. 1 J. W. Miears, 1,065 ft. from SW line, 685 ft. from NW line of John Maximilian Sur. ..... Spudded in.
Ogden & Reed's No. 1 W. F. Talley, 200 ft. from SE and SW lines of 198-ac. tract in Joshua Gray Sur. .. Derrick.
Watt L. Saunders' No. 1 Harris, 1,100 ft. from SW line, 2,930 ft. from NW line of John Maximilian Sur. No. 22 ..... Spudded in.
Witherspoon Oil Co.'s No. 1 A. H. Harris, 150 ft. from SE and SW lines of Harris' 180-ac. tract in Joshua Gray Sur. ..... Rigged up.

TULETA POOL—BEE COUNTY

Garland Clymore's No. 1 Rapp & Hatch, 650 ft. E along the S line from R.R., thence 1,350 ft. N at R/A in Sec. 12 of J. M. Uranga Sur. ..... Moving in rig.

ECKERT POOL—BEXAR COUNTY

Alamo Nat. Gas Co.'s No. 2 Coreth, 300 ft. SE of Humble's No. 2 Coreth in A. Stafford Sur. ..... T.D. 1,055 ft.; drlg.
J. F. Harrison's No. 1 F. Gembler, 150 ft. from NW line, 460 ft. from NE line of 88-ac. tract in J. Montez Sur. ..... T.D. 831 ft.; S.D.
S. J. Moore's No. 2 T. W. Masterson, 150 ft. from S line, 175 ft. from W line of 41-ac. tract in Miguel Gortaris Sur. ..... T.D. 615 ft.; drlg.
S. J. Moore's No. 1 T. W. Masterson, 150 ft. from S and W lines of tract in M. Cartari Sur. ..... T.D. 200 ft.; drlg.
Trio Oil Co.'s No. 7 Sandermer, 1,400 ft. from E line, 180 ft. from S line of 109-ac. tract in A. Manchaca Sur. No. 51 ..... T.D. 605 ft.; set csg.

VON ORMY POOL—BEXAR COUNTY

Von Ormy Oil Co.'s No. 2 E. B. Carruth, 515 ft. from W line, 1,970 ft. from S line of 160-ac. tract out of 657-ac. tract in F. Rolen Sur. ..... Rigged up and standing.

WEBSTER POOL—CALDWELL COUNTY

C. J. Webster O. & G. Co.'s No. 2 McCroy, 750 ft. from S line, 150 ft. W of NE cor. of tract in John A. Neill Sur. ..... T.D. 2,276 ft.; P.B. to 600 ft. to make gas well.

EAGLE HILL POOL—DUVAL COUNTY

Al Buchanan's No. 4 Duval Ranch, 660 ft. W of No. 1, in Sur. No. 206 ..... Location.
Al Buchanan's No. 3 Duval County Ranch Co., 330 ft. from S line, 2,310 ft. from E line of N½ of Sur. No. 206 ..... T.D. 1,489 ft.; drlg. in.
Al Buchanan's No. 4 Duval County Ranch Co., 990 ft. from S line, 2,310 ft. from E line of N½ Sur. 206. Rigged up.
R. D. Kelley's No. 3 Foster, 330 ft. from W line, 1,436 ft. from N line of 50-ac. tract in Sur. 206 ..... T.D. 1,475 ft.; comp. 168 bbls. dly.
Shasta Oil Co.'s No. 2 Foster, S offset to No. 1 ..... T.D. 1,479 ft.; comp. 100 bbls. dly.
Texas Co.'s No. 7-A Duval County Ranch Co., 660 ft. W of No. 6-A, in N½ N½ of Sur. No. 206 ..... T.D. 1,910 ft.; tested gas at 1,497 ft.; D.D.

EAST COLE POOL—DUVAL COUNTY

Allen & Morris' No. 1 Bruni, 418 ft. from NE line, 240 ft. from SE line of Blk. 2, Sec. 5, of Adams Subd. of Arispe grant ..... Rigged up.
Cole Pet. Co.'s No. 2 S. Benavdies, 350 ft. from SE line, 300 ft. from SW line, Blk. 347, Hale's Subd. of Arispe grant ..... T.D. 2,430 ft.; bailing; by error reported comp. as gas well.
Motes-Campbell's No. 1 Bruni, 150 ft. from NE and SE lines of Sec. 493, Myrtle E. Hale Subd., Mariano Arispe grant ..... T.D. 1,055 ft.; drlg.

IGNACIO POOL—DUVAL COUNTY

DeSoto O. & G. Co.'s No. 3 Wood-Welder, 3,120 ft. from W line 1,170 ft. from N line of Sur. No. 211.. Rigging up.
Texas Co.'s No. 1 Rodriguez, 330 ft. from S and W lines of N½ of Sur. No. 212 ..... T.D. 1,521 ft.; coring.

NORTH GOVERNMENT WELLS POOL—DUVAL COUNTY

Humble O. & R. Co.'s No. 29 C. W. Hahl, 3,670 ft. from S line, 2,310 ft. from W line of E½ of Sur. No. 360 ..... T.D. 2,314 ft.; 960 bbls. daily.
Humble O. & R. Co.'s No. 30 C. W. Hahl, 2,310 ft. from S line, 1,650 ft. from W line of E½ Sur. No. 360 ..... Moving in.
Humble O. & R. Co.'s No. 31 C. W. Hahl, 1,690 ft. from N line, 330 ft. from W line of Sur. No. 74.... Moving in.
Magnolia Pet. Co.'s No. 2 Duval County Ranch Co., 330 ft. from S line, 990 ft. from E line of NE of Sur. No. 362 ..... Rigged up.
Magnolia Pet. Co.'s No. 15 Duval Ranch, 2,310 ft. from E line, 1,650 ft. from S line of Sur. No. 208 .... T.D. 2,318 ft.; set csg.
Magnolia Pet. Co.'s No. 4 Lundell, 990 ft. from S line, 2,310 ft. from E line of Sur. No. 60 ..... T.D. 2,250 ft.; tested 150 ft. oil; D.D.
Magnolia Pet. Co.'s No. 16 Duval County Ranch Co., 330 ft. from S and W lines of Sur. No. 208 ..... T.D. 2,326 ft.; 50 bbls. daily.
Reynosa Oil Corp.'s No. 7-A Duval County Ranch, 330 ft. from N line, 990 ft. from E line of N½ SW of Sur. No. 362 ..... T.D. 850 ft.; drlg.
Reynosa Oil Corp.'s No. 6-A Duval Ranch Co., 330 ft. from N and E lines of N¼ of SW of Sur. No. 362... T.D. 2,286 ft.; 70 bbls. daily.
Smith & Story's No. 6-A E. C. Lundell, 150 ft. from S line, 150 ft. from W line of SE SW Sur. No. 48.... T.D. 1,538 ft.; tested gas; D.D.
Sun Oil Co.'s No. 24 Weiderkehr, 2,970 ft. from N line, 1,650 ft. from E line of Sur. No. 359 ..... T.D. 2,100 ft.; drlg.
Sun Oil Co.'s No. 20 Weiderkehr, 2,310 ft. from N line, 990 ft. from E line of Sur. No. 361 ..... T.D. 2,254 ft.; 100 bbls. daily.
Sun Oil Co.'s No. 21 Weiderkehr, 1,650 ft. from N line, 1,650 ft. from E line of Sur. No. 359 ..... T.D. 2,286 ft.; comp 35 bbls. dly.
Sun Oil Co.'s No. 22 Weiderkehr, 2,310 ft. from N line, 1,650 ft. from E line of Sur. No. 359 ..... T.D. 2,278 ft.; comp. 35 bbls. dly.
Sun Oil Co.'s No. 25 Weiderkehr, 330 ft. from N line, 1,650 ft. from E line of Sur. No. 359 ..... Rigged up.
Sun Oil Co.'s No. 26 Weiderkehr, 2,030 ft. W of No. 25 in Sur. No. 359 ..... Rigged up.
Texas Co.'s No. 10 H. Wendt, 330 ft. from W line, 1,650 ft. from N line of Sur. No. 42 ..... Location.
Texas Co.'s No. 9 Johnson, 330 ft. from S and W lines of NW of Sur. No. 42 ..... T.D. 1,680 ft.; drlg.
Texas Co.'s No. 3 Duval County Ranch Co., 330 ft. from S and W lines of SE of Sur. No. 362 ..... T.D. 2,301 ft.; comp. 960 bbls. dly.
Violet Oil Co.'s No. 2 M. Webb, 330 ft. from N line, 330 ft. from E line of Sur. No. 41 ..... T.D. 2,253 ft.; set csg.

SOUTH GOVERNMENT WELLS POOL—DUVAL COUNTY

Bridwell's No. 2 C. W. Hahl, 660 ft. from S line, 200 ft. from W line of Sur. No. 250 ..... T.D. 2,319 ft.; comp. 150 bbls. dly.
Rodney DeLange's (Cox & Hamon) No. 4 Lundell, 330 ft. from N and W lines of SE SW Sur. No. 60.... Moving in.
Humble O. & R. Co.'s No. 17 Paul White, 990 ft. from S line, 330 ft. from E line of Sur. No. 249 ..... Derrick.
Humble O. & R. Co.'s No. 16 Paul White, W offset to Birdwell's No. 1 Hahl, in Sur. No. 249 ..... Drlg. 2,326 ft; comp. 150 bbls. dly.

SARNOSA POOL—DUVAL COUNTY

Magnolia Pet. Co.'s No. 5 Ruiz, 330 ft. from NE and SE lines of S¼ of Sur. No. 574 ..... Derrick.
Wertheimer Oil Corp.'s No. 2 Hernendez, 653 ft. SE of No. 1, and 357 ft. NE of SW line of E¼ of Sur. No. 574 ..... T.D. 2,500 ft.; jetting 7 bbls. hrly.

PALANGANO POOL—DUVAL COUNTY

J. W. Edwards' No. 1 Gravia, 1,670 ft. from NE line, 1,830 ft. from SE line of Sur. No. 2 ..... T.D. 3,810 ft.; abd.

GOLIAD COUNTY

United Prod. Co.'s No. 3 Ray, 3,388 ft. from N line, 958 ft. from E line of Moore Sur. ..... T.D. 6,054 ft.; W.O. job; being P.B. to Pettus sand at 4,054 ft.; swabbing.

NEW BERLIN POOL—GUADALUPE COUNTY

J. A. Harper's No. 2 Rosenbrook, 660 ft. SW of No. 1...T.D. 701 ft.; standing.

ALWORTH POOL—JIM HOGG COUNTY

French Oil Corp.'s No. 1 M. Garza (W side of pool), Sur. No. 281 ..... Set surface csg.

KINGSVILLE POOL—KLEBERG COUNTY

Ryals & Bartlett's No. 1 Flato, 150 ft. from N line, 30 ft. from W line of NE SE Sec. 40, of Kleberg Town & Improvement Co. Sur. ..... Derrick.

JACOB POOL—McMULLEN COUNTY

C. R. Kennon's No. 1 Lark, 810 ft. from W line, 150 ft. from N line of 20-ac. tract, Blk. 27, Scrugham Sur. ..... T.D. 1,000 ft.; cored sand.
Loma Oil Co.'s No. 18-A Jacobs, 660 ft. S of No. 11, in W. H. Jacobs Sur. No. 8 ..... Derrick.

AGUA DULCE POOL—NUECES COUNTY

Garland Clymore's No. 1 Ollie Purl ..... T.D. 4,858 ft.; est. 100 bbls. gasoline daily.

CUEVITAS POOL—STARR COUNTY

Sun Oil Co.'s No. 7-A Guerra, 1,320 ft. E of No. 2-A Guerra in Cuevitas grant ..... T.D. 2,260 ft.; comp. 400 bbls. dly.
Sun Oil Co.'s No. 3-C Guerra, 1,800 ft. from NE line, 660 ft. from SE line, Sacatosa grant ..... T.D. 2,300 ft.; coring.
Sun Oil Co.'s No. 1-D Guerra, 6,353 ft. from NE line, 2,300 ft. from SE line of La Sacatosa grant ..... Rigging up.

LOS OLMOS POOL—STARR COUNTY

Los Olmos O. & G. Co.'s No. 57 Kelsey Bass, 150 ft. from N line, 568 ft. from W line of SE SW Sec. 6, Porcions 75, 76 and 77 ..... T.D. 850 ft.; drlg.

CAROLINE-TEXAS POOL—WEBB COUNTY

Carolina-Texas O. & G. Co.'s No. 11 S. Benavides, 150 ft. from S line, 600 ft. from W line of Blk. 12, Sur. No. 683 ..... T.D. 2.650 ft.; drlg.

LAUREL POOL—WEBB COUNTY

South Texas Oil Co.'s No. 17 Rosenberg, 150 ft. from E line, 300 ft. from S line of Blk. 5, Sur. No. 271.. T.D. 2,258 ft.; abd.; hole lost.
South Texas Oil Co.'s No. 18 Rosenberg, 550 ft. from S line, 250 ft. from E line of Blk. 5, Sur. No. 271.. Moving in.

WEST COLE POOL—WEBB COUNTY

Cole Pet. Co.'s No. 81 R. Benavides, 140 ft. from N line, 1,362 ft. from E line of Blk. 6, Sur. 412..... T.D. 2,330 ft.; set csg.
Magnolia Pet. Co.'s No. 1 S. S. Benavides, 330 ft. from N line, 990 ft. from W line of Sur. No. 696..... T.D. 2,370 ft.; coring.

BYERSVILLE POOL—WILLIAMSON COUNTY

J. M. Forwood's No. 1 Dabney & Bass, 150 ft. from N and W lines of 400-ac. tract in H. White Sur.. T.D. 1,074 ft.; abd.
Fritz Fuch's No. 1 C. W. Johnson, 600 ft. from SE line, 700 ft. from NE line of tract in P. Cartwright Sur. ..... Drlg. 1,038 ft.; in chalk.
Taylor Prod. Co.'s No. 1 John Reiger, 150 ft. from NE line, 3,950 ft. from SE line of P. Cartwright Sur. ..... Derrick.

ALWORTH POOL—ZAPATA COUNTY

French Oil Corp.'s No. 1 M. Garza, 330 ft. from N line, 330 ft. from E line of Blk. 7, Sur. No. 281.... T.D. 1,929 ft.; drlg.

ESCOBAS POOL—ZAPATA COUNTY

Texas Co.'s No. 40 Whitehead, 2,757 ft. from SE line, 20,987 ft. from SW line of Cerrito Blanco grant.... T.D. 1,200 ft.; drlg.
W. E. West and J. P. Perry's No. 1 Garcia, 1,200 ft. from NW line, 200 ft. from NE line of Share 3 of Comitas grant ..... T.D. 225 ft.; standing.

MARTINEZ POOL—ZAPATA COUNTY

W. R. Shankle and Wm. McGinley's No. 2 Manuel Trevino heirs, 330 ft. from W line, 150 ft. from S line of Blk. 15, Sur. No. 411 ..... Rigged up.

MIRANDO VALLEY POOL—ZAPATA COUNTY

Blair & Blankenship's No. 1 R. Hinnant, 450 ft. from S line, 300 ft. from W line of Blk. 16, Sur. No. 116.. T.D. 1,505 ft.; testing.

VILLA POOL—ZAPATA COUNTY

Danvers & Harrison's No. 1 Garza, 330 ft. from SE and NE lines of Blk. 102, Douglas Subd., Comitas grant.. Location.

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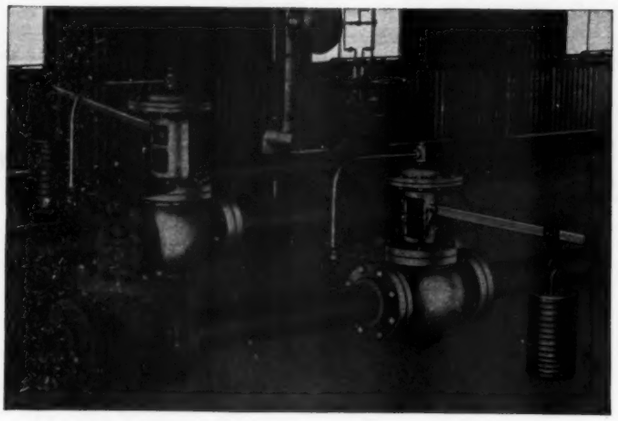

THE illustration shows two C-F Regulators, the larger for winter use when loads are heavy, the smaller for use in summer.

Double settings of C-F Regulators are not uncommon in border stations. They assure smooth and accurate control of either high or lower pressures, whether flow is constant or fluctuating, enlarged or reduced.

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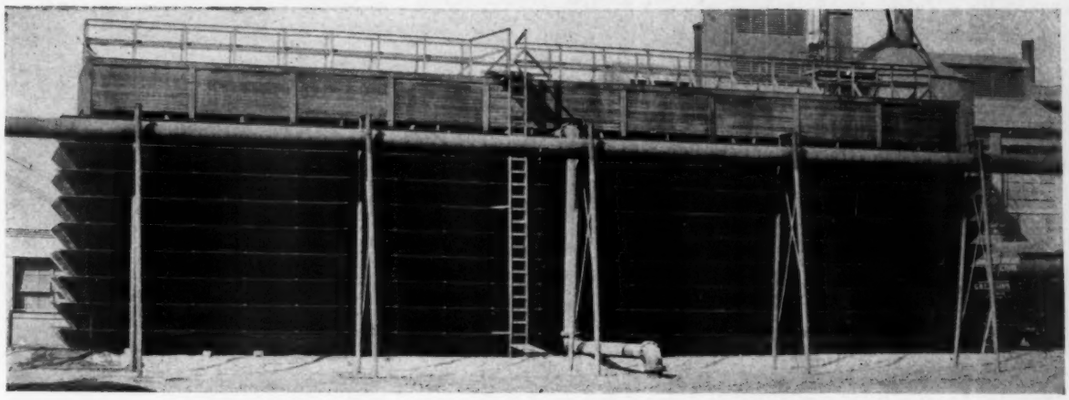
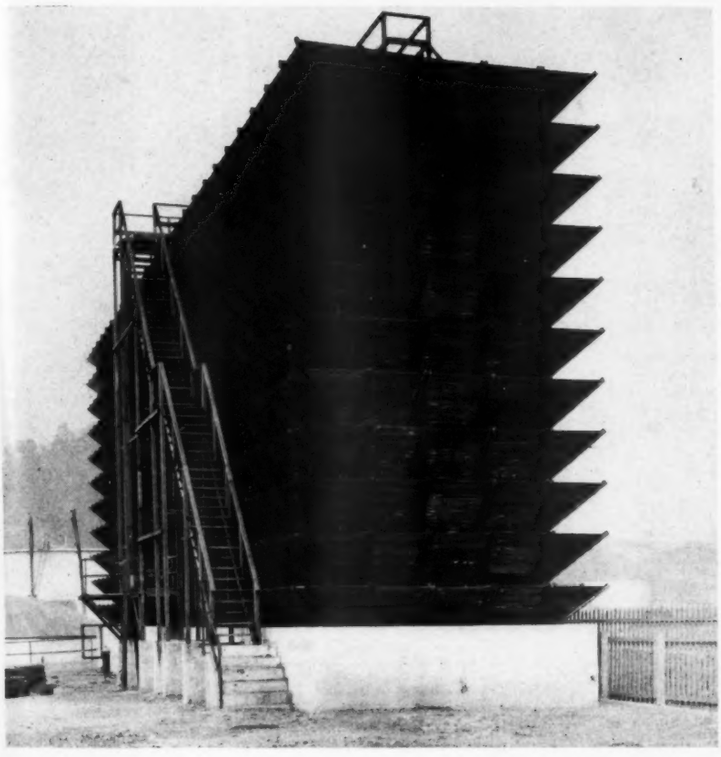




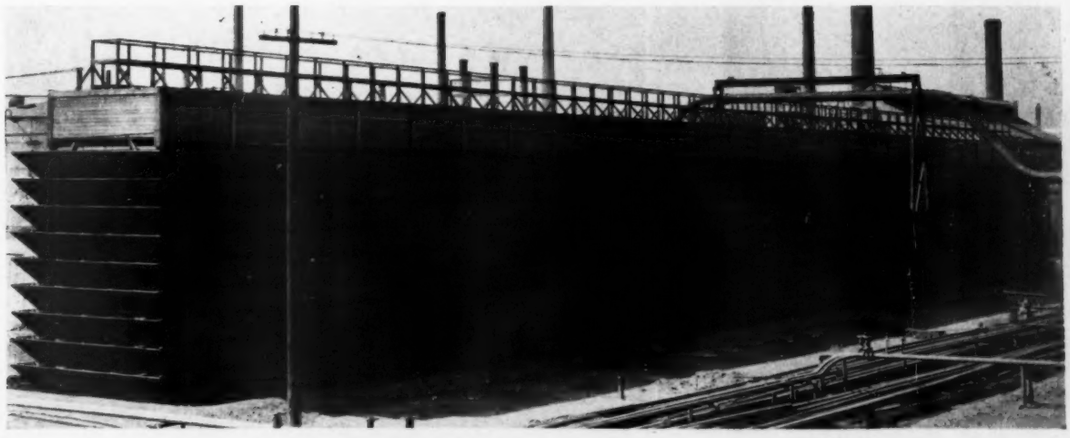
Refinery Cooling Towers

Refineries throughout the world are getting excellent results from Foster Wheeler cooling towers. These towers are made in all types to suit refinery conditions but the most widely used is the atmospheric type shown.

The tower at the left is in the Olean refinery of Socony-Vacuum Corporation and the other two are in the Port Arthur refinery of the Gulf Refining Company.

A large atmospheric tower almost 1,000 feet long and more than 50 feet high is now being erected by Foster Wheeler in a new Texas refinery.

Foster Wheeler Corporation
165 Broadway, New York



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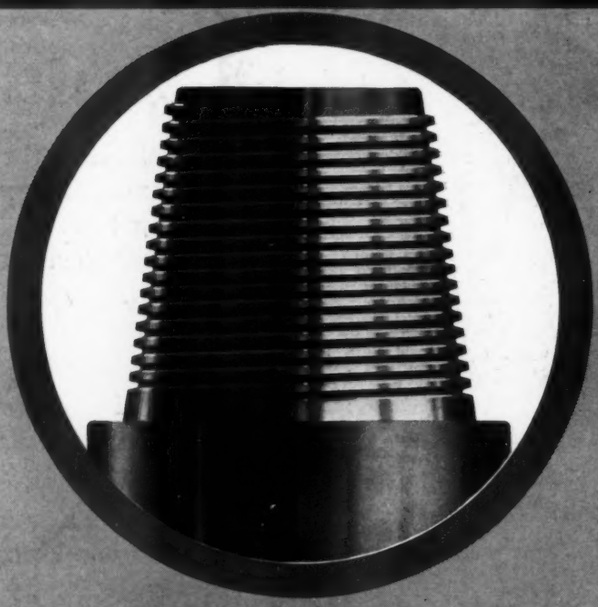
SINGLE COMPLAINT

FULL HOLE
OR
REGULAR TYPE



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